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A Perspective on the Health of Albertans

Alberta
SOCIAL SERVICES
AND COMMUNITY HEALTH

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A Perspective on the
Health of Albertans

Stephen Newman

Division Support Branch
Health Services Division
Social Services & Community Health

December, 1984

PREFACE

Although we all use the term health and have an intuitive sense of what it means to be healthy, the question of how to make this concept operational is quite another matter. At the level of the individual the problem might be resolved by simply adopting the well established medical check-up as the guideline for measuring wellbeing. But how does one evaluate the health status of an entire community? Valuable insights into this question, especially from the Canadian vantage point, are provided by "A New Perspective on the Health of Canadians", from which the title of this report is adapted [1]. This document provides a framework for thinking about health in Canada, and covers topics ranging from the traditional view of the health to strategies for the future.

The scope of the present report is far less ambitious. What we have attempted to provide is a baseline of information concerning health in Alberta. Traditional indicators of natality, mortality and hospital morbidity have been assembled, as well as more modern indices. It is clear that births, deaths and hospitalizations are only a part of the health picture. But they are an important part, and an analysis of these aspects of health yields important clues to other less visible components, such as disability and societal problems. Furthermore, from the practical point of view, statistics are available for these three areas, and this cannot be said for many of the other topics one might wish to see included in a health status report.

The report is based on an extensive, and perhaps at times bewildering, array of statistical material. There are over 50 tables, most of which are subdivided according to region (Alberta and Canada), and again according to sex. In addition, the majority of the tables deal with trends over the past decade. It is clear that any attempt to summarize all of this information is doomed to failure unless there is a clear focus as to what needs to be highlighted.

Whereas the aim of the report is to elucidate the health status of Albertans, the point of view has been adopted that the situation for Canada is only relevant insofar as it provides a convenient standard for gauging

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patterns in this province. To that end, all age-standardized rates in the report have been standardized to an Alberta population, and only trends for Alberta will be commented upon. This approach can be criticized for being somewhat provincial, but it is defended on the basis of the volume of material to be covered. Furthermore, no attempt is made to provide the connection with causation; the report is descriptive only. So, for example, although cigarette smoking is almost certainly the cause of increasing lung cancer death rates, this observation will not be found in the body of the report. Such interpretations will be reserved for future publications.

The findings are organized, for the most part, in the following fashion: (1) Is the situation "better or worse" in Alberta compared to Canada as a whole?, (2) Has the trend in Alberta been "increasing or decreasing", and by how much?. Although the programmed nature of the presentation has its drawbacks, it does encourage comparisons, and it makes this volume handy as a reference work, which is likely to be one of its ultimate functions.

Many of the notions considered in the following pages will be new to certain readers. So it is necessary to have an educational component to the report. As each new demographic idea is introduced it is accompanied by the corresponding background material or mathematical formula. The latter are meant to impart concepts, not to be necessarily technically correct; Appendix A gives the details of the demographic methods used.

The statistics used in the report were taken from Statistics Canada publications or obtained by special request from federal sources (see Appendix B and Acknowledgements). Every attempt was made to use the most recent material available at the time the report was being prepared.

Most federal health statistics differ from those available from provincial sources in at least one respect. Events (births, deaths, hospitalizations, etc.) are registered by the provinces as they occur within provincial boundaries, and subsequently reported in provincial statistics. The federal government usually reworks the data it receives from the provinces and compiles statistics according to province of residence. From the point of view patterns in this province. To this end, all age-standardized rates in the report have been standardized to the Alberta population, and only trends for Alberta will be commented upon. This approach may be criticized for being somewhat provincial, but it is determined by the nature of the volume of material to be covered. Furthermore, no attempt is made [illegible] throughout the report is descriptive only. For example, although cigarette smoking is almost certainly the cause of increasing lung cancer death rates, this observation will not be found in the body of the report. Such interpretations will be reserved for future publications.

The findings are organized, for the most part, in the following fashion: (1) Is the situation 'better or worse' in Alberta compared to Canada as a whole? (2) Are the trends in Alberta over 'increasing or decreasing', 'moving' and such? Although the piecemeal nature of the presentation has its [illegible], it does encourage comparisons, and it makes this report useful as a reference work, which is likely to be one of its ultimate functions.

Many of the matters considered in the following pages will be new to certain readers. So it is necessary to have an annotated [illegible] report. [illegible] background material or mathematical formulae. [illegible] Appendix A gives the details of the demographic methods used.

The statistics used in the report were based upon official statistical publications or obtained by special request from various agencies (see Appendix B and Acknowledgements). Every attempt was made to use the most recent material available at the time the report was being prepared.

Most [illegible] health [illegible] differ from the major [illegible] services [illegible] in the report. [illegible] are registered by the provinces [illegible] and subsequently reported to provincial [illegible]. The federal government usually through the [illegible] the data it receives from the provinces and [illegible] of Canada. From the point of view of computing health indicators this difference is of no practical significance.

In the report Alberta and Canada are treated as independent entities. This is obviously incorrect, the proper comparison being Alberta and "Canada minus Alberta". However, following the latter approach would not have changed the findings in any significant way and so was not pursued.

It was remarked above that all age-standardized rates have been standardized to an Alberta population. Specifically, the male and female populations of Alberta in 1981 have been adopted as the standard populations, and male and female rates have been standardized separately. This means that all the male age-standardized rates found in the report represent what would have been the observed rates (in Alberta or Canada) if the prevailing age-distribution in a given year had been that of the Alberta male population in 1981; and similarly for females. This device corrects for the possible misleading effects that differing age distributions can introduce into a comparison of rates.

The report has been structured so that whenever possible a graph has been used in place of a table. A complete series of tables is included in Appendix C. In all of the graphs, Alberta is represented by a solid line, and Canada by a dashed line.

In each graph the horizontal axis is a time axis, while the vertical axis depends on the nature of the rate being considered. Because different types of rates vary so greatly in the ranges that they cover, it has not been possible to adopt a uniform scale for vertical axes that is suitable for all graphs. In addition, the vertical axes do not start at zero. This means that great care must be exercised when comparing graphs; the scale of the vertical axis must be taken into consideration, otherwise erroneous interpretations may be made.

ACKNOWLEDGEMENTS

I am indebted to J. Coombs, J. Lindsay, C. Nair, J. Silins and E. Taylor of the Health Division, Statistics Canada, and to R. Semenciw and Dr. D. Wigle of the Laboratory Centre for Disease Control, Health and Welfare Canada. All of these individuals made statistical material available for the report and took the time to discuss with the author issues relating to federal databases. Without their help major sections of the report might never have been completed.

I also wish to acknowledge the input of the Joint Long Range Planning Steering Committee, a body with membership from the Department of Social Services and Community Health, Health Unit Association of Alberta and Local Health Authorities. Suggestions by the chairman, M. Abdurahman, and committee members, Dr. G. Bonham, L. Charach, Dr. K. Hodgins, Dr. B. O'Connor, D. Parker, and M. Roth, were helpful in the preparation of the report.

Thanks are also due to B. Jeffers for valuable research assistance, and to S. Chau for excellent typing.

It goes without saying that sole responsibility for whatever errors or omissions there may be in this report are the responsibility of the author.

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Health

December, 1984

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1. POPULATION SIZE AND STRUCTURE

1. POPULATION SIZE AND STRUCTURE

Three of the most fundamental demographic characteristics of a population are it's size, age distribution and sex composition. A discussion of these features of the populations of Alberta and Canada will take up most of this chapter. In chapters 2 and 3 a detailed study is made of natality and mortality. It is beyond the scope of this report to attempt a complete elucidation of the complex way in which these two forces interact to influence, for example, population size. But a glimpse of how this occurs is possible using only elementary methods, and this is described in the last part of this chapter.

Table 1.1 This table shows the population size of Alberta and Canada during 1972-83.

- the populations of Alberta and Canada increased in size annually during 1972-83.
- the population of Alberta increased by 42% between 1972 and 1983, while the population of Canada increased by only 14%.

Table 1.1 Population Size, 1972-83

	Population Size*	
Year	Alberta	Canada
1972	1,657.3	21,801.3
1973	1,689.5	22,043.0
1974	1,722.4	22,363.9
1975	1,778.3	22,697.1
1976	1,838.0	22,992.6
1977	1,912.7	23,272.8
1978	1,983.1	23,517.0
1979	2,052.8	23,747.3
1980	2,140.6	24,042.5
1981	2,237.7	24,343.2
1982	2,317.0	24,634.2
1983	2,350.0	24,889.8

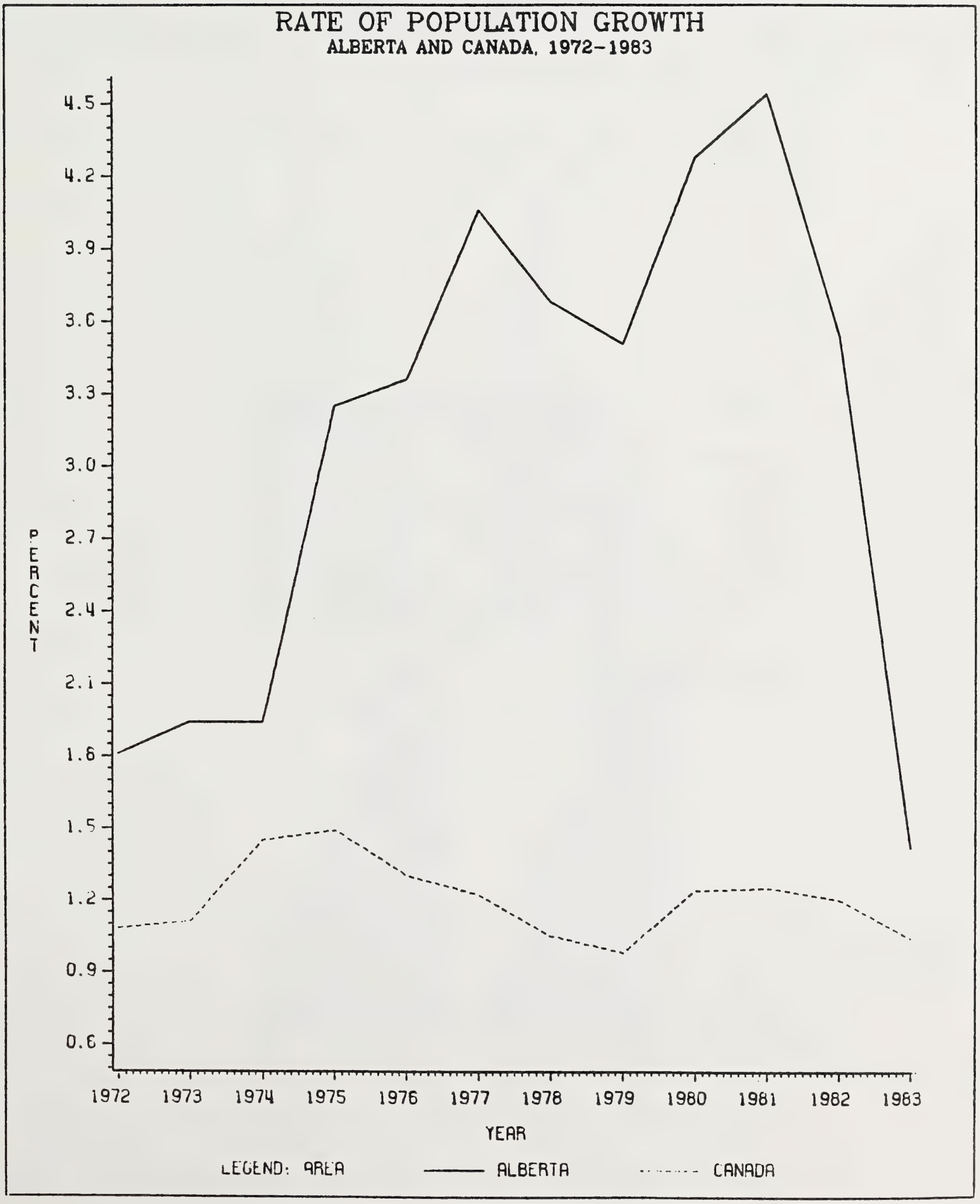
* in 1000s

Figure 1.2 This figure shows the rate of population growth in Alberta and Canada during 1972-83. The rate of population growth is defined to be the percent increase (or decrease) in the size of the population over a given time period (in the present case, one year).

* the rate of population growth in Alberta was significantly greater than the rate in Canada throughout 1972-83.

* the rate in Alberta increased by 150% between 1972 and 1981 (when it reached a maximum), but by 1983 had dropped to its lowest level for the period.

Figure 1.2



RATE OF POPULATION GROWTH
ALBERTA AND CANADA, 1972-1983

Figure 1.3 This figure shows the age distributions of Alberta and Canada in 1983. The age distribution of a population is defined to be the percent of the population in each age group (in the present case, ten-year age groups).

- the population of Alberta was somewhat younger than the population of Canada, in the sense that 90% of Alberta males and 88% of Alberta females were less than 60 years of age, compared to 87% of Canadian males and 84% of Canadian females.

- the single age group contributing most to the shift to younger ages in Alberta was the 20 - 29 years olds.

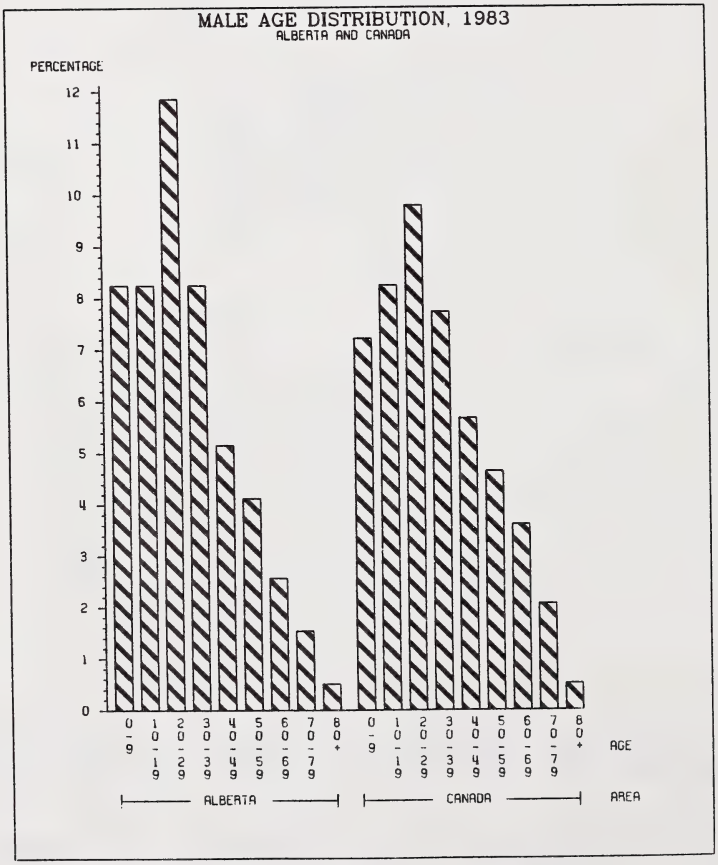


Figure 1.3

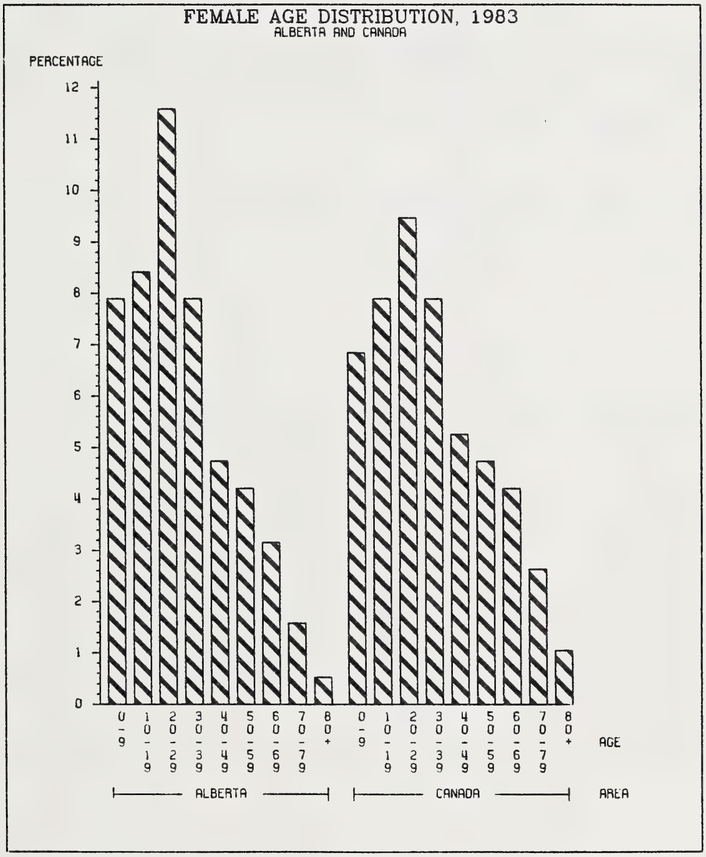

FEMALE AGE DISTRIBUTION, 1983
ALBERTA AND CANADA
PERCENTAGE
0
1
2
3
4
5
6
7
8
9
10
11
12
0-9
10-19
20-29
30-39
40-49
50-59
60-69
70-79
80+
AGE
ALBERTA
CANADA
AREA

Table 1.4 This table shows the sex composition of Alberta and Canada for females in 1983. The sex composition for females is defined to be the percent of each age group that is female.

- the patterns are similar in Alberta and Canada.

- until approximately age 55 there were slightly fewer females than males in Alberta; after age 55 the pattern reversed and became increasingly more extreme.

- 60% of Albertans in the 80+ age group were female.

Table 1.4 Sex Composition, Females, 1983

	Sex Composition	
Age Group	Alberta	Canada
0 - 9	48.7	48.7
10 - 19	48.5	48.7
20 - 29	48.1	49.9
30 - 39	48.0	49.9
40 - 49	48.2	49.6
50 - 59	48.8	50.6
60 - 69	52.4	53.4
70 - 79	54.5	56.9
80+	59.9	65.0

Figure 1.5 This figure shows the rate of natural increase in Alberta and Canada during 1972-82. The rate of natural increase is defined by

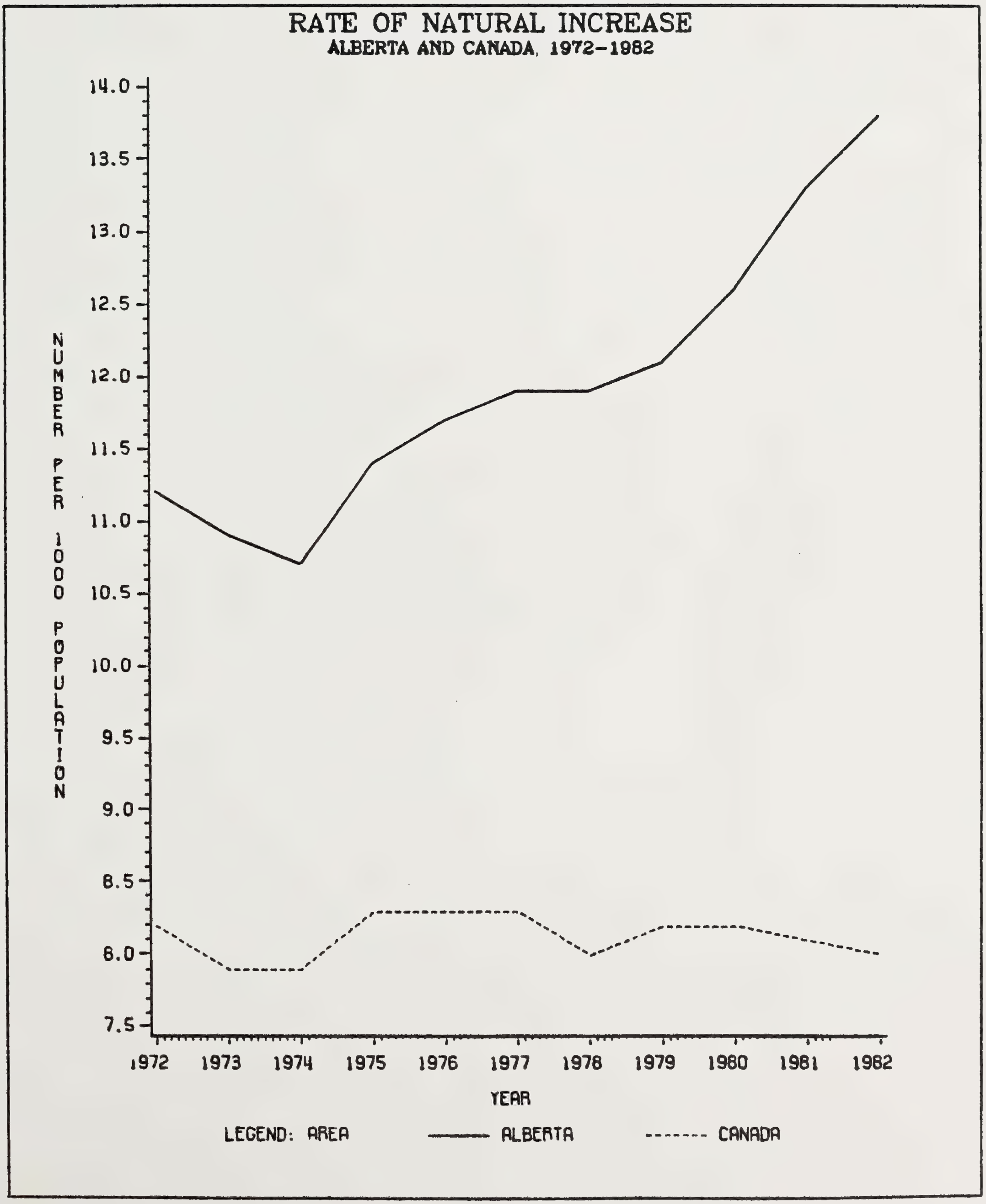
$$\frac{\text{livebirths - deaths}}{\text{population size}} \times 1000$$

It is a crude measure of the way in which the forces of natality and mortality interact to alter population size. (The use of the term livebirth as opposed to simply birth will be made clear in chapter 2.)

* the rate of natural increase in Alberta was greater than the rate in Canada throughout 1972-82; in 1982 (when it reached a maximum) the Alberta rate was 70% greater than the Canadian rate.

The findings in figure 1.5 suggest that livebirth rates in Alberta may have been greater than those in Canada during 1972-82, while at the same time death rates may have been less. These possibilities are explored in Chapters 2 and 3.

Figure 1.5


RATE OF NATURAL INCREASE
ALBERTA AND CANADA, 1972–1982
NUMBER PER 1000 POPULATION
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
YEAR
LEGEND: AREA
ALBERTA
CANADA

2. NATALITY

2. NATALITY

A pregnancy results in one of four outcomes -- a livebirth, a stillbirth, a therapeutic abortion, or a spontaneous abortion. Each of these terms requires definition, but rather than quote sometimes convoluted passages from legal statutes and medical texts, the following nontechnical definitions are provided.

If a woman gives birth to a baby showing some signs of life then, regardless of the length of the pregnancy, a livebirth is said to have taken place. However if there are no signs of life and the duration of pregnancy is 28 weeks or more then the term stillbirth is used. Had the pregnancy lasted less than 28 weeks the latter outcome would have been called a spontaneous abortion. Finally, a therapeutic abortion refers to the intentional termination of a pregnancy by medical intervention. A colloquial but imprecise term for spontaneous abortion is "miscarriage". Note that the definition of therapeutic abortion only makes allowance for interventions by a medical practitioner.

Of the four pregnancy outcomes, only the (technical) definitions of livebirth and therapeutic abortion are consistent from province to province. The definition of stillbirth is somewhat variable, and since spontaneous abortions are by default the remaining outcomes there is variability here as well. The definition of stillbirth given above is one of two used at the federal level; it is a compromise among the provincial definitions. Federal publications also report stillbirth statistics according to a definition based on 20 weeks. The 28 week version will be the one used in this report. Because the determination of a stillbirth requires that the length of gestation be known with accuracy, a prerequisite that is not always met, there may be a tendency for stillbirths to be undercounted. Spontaneous abortions can occur very early in pregnancy, and many may never come to the attention of the medical community. It is generally agreed that spontaneous abortions are significantly undercounted.

The reliability of the statistics used in this report may be considered from the point of view of completeness and accuracy, terms which refer to the database from which the statistics are prepared. Completeness refers to the extent to which the database includes information on every relevant event. For example, does the national livebirth database have an entry for every livebirth to a Canadian woman? Accuracy refers to the extent to which the information in the database is a true reflection of what it purports to record. To continue with the preceding example, does the national livebirth database have the correct age of each woman from whom information was collected? It is clearly important to have an understanding of the completeness and accuracy of a set of statistics so that any analysis based on them may be interpreted accordingly.

Generally speaking, livebirth and therapeutic abortion statistics are considered to be complete and accurate, although recently there has been some discussion centering around the number of women who may be having therapeutic abortions outside Canada. Stillbirth statistics are not as reliable as might be wished, but are nevertheless of sufficient quality to merit attention. Spontaneous abortion statistics are far from being complete and so will not be considered in this report.

Since age-specific natality statistics are not available for Newfoundland, this province has been excluded from the Canada part of the tables and graphs. For brevity, "Canada" will be used in place of "Canada (minus Newfoundland)" in the narrative of this chapter. The reproductive years are taken to be 10 - 49, although rarely a pregnancy occurs outside these limits. The natality statistics used in this report have been compiled according to province of residence. Appendix A gives the definitions of the various rates and ratios used in this chapter.

Table 2.1 This table shows the number of livebirths, stillbirths and therapeutic abortions in Alberta and Canada during 1972-82.

- * the percent contributions of livebirths, stillbirths and therapeutic abortions to the total of the three pregnancy outcomes in Alberta in 1982 were 87%, 0.5% and 13%, respectively.

It is clear that livebirths represent by far the most frequent pregnancy outcome, although therapeutic abortions are not uncommon. Stillbirths are relatively rare.

Table 2.1 Pregnancy Outcomes, 1972-82

	Pregnancy Outcomes		
Year	Livebirths	Stillbirths	Therapeutic Abortions
		Alberta	
1972	29,282	229	3,752
1973	29,288	206	4,047
1974	29,813	188	4,391
1975	31,624	185	4,333
1976	33,063	201	4,943
1977	34,406	238	5,642
1978	35,396	219	6,562
1979	37,003	217	6,872
1980	39,749	230	7,131
1981	42,638	219	6,757
1982	45,036	257	6,617
		Canada (minus Nfld)	
1972	334,421	2,925	6,249
1973	331,467	2,715	11,056
1974	335,409	2,639	41,043
1975	348,110	2,533	48,857
1976	348,857	2,447	53,679
1977	351,799	2,360	56,638
1978	348,885	2,143	61,269
1979	355,894	2,118	63,924
1980	360,377	1,980	64,704
1981	361,216	1,965	64,084
1982	363,909	1,876	65,355

2.1 Livebirths

Figure 2.2 This figure shows the age-standardized livebirth rates for Alberta and Canada during 1972-82. The livebirth rate is defined by

$$\frac{\text{livebirths}}{\text{population size}} \times 1000$$

- * the rate in Alberta was significantly greater than the rate in Canada throughout 1972-82.
- * the rate in Alberta decreased until about 1979 and then began to increase.
- * overall the rate in Alberta decreased by 13% between 1972 and 1982.

Figure 2.2

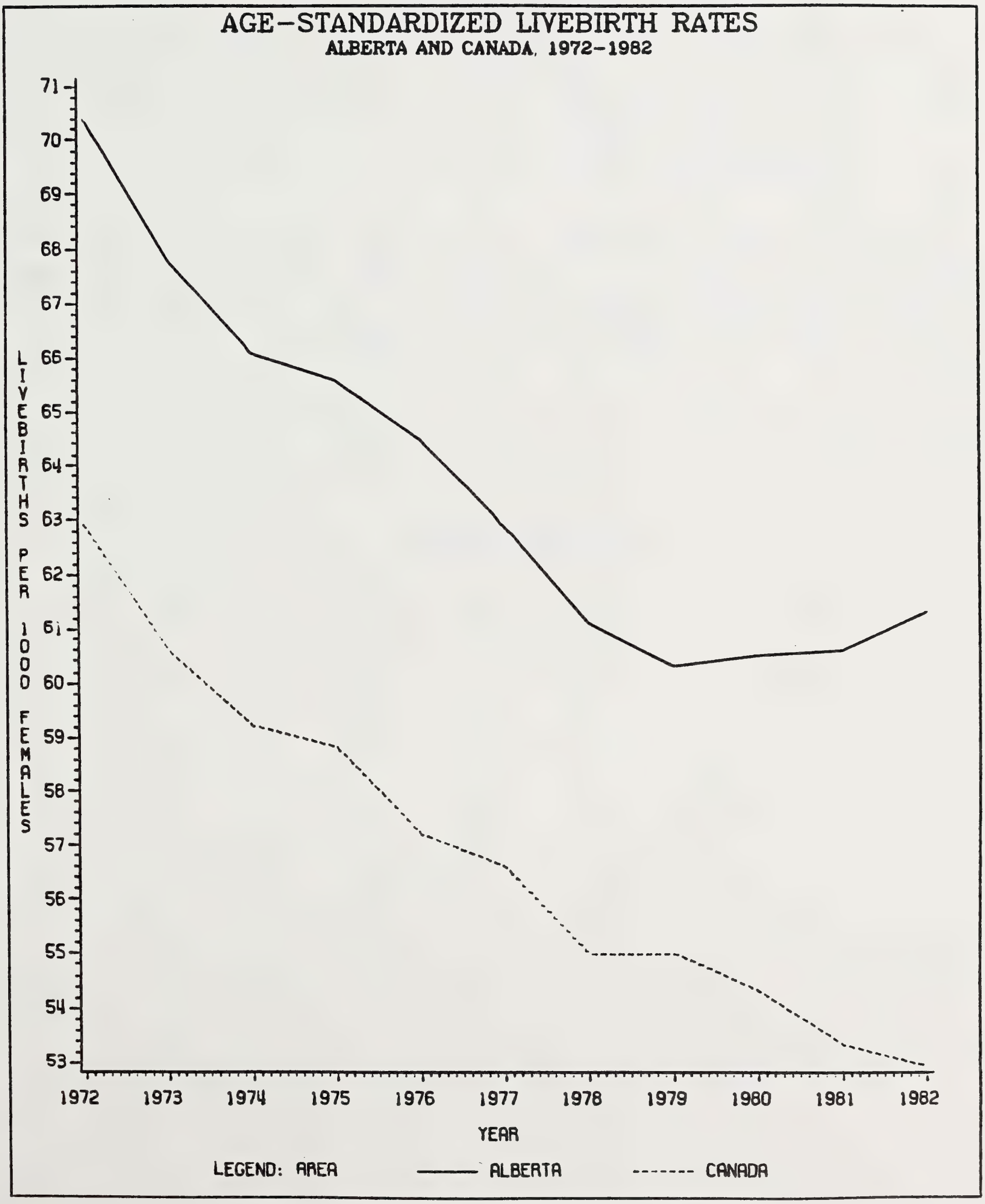

AGE-STANDARDIZED LIVEBIRTH RATES
ALBERTA AND CANADA, 1972-1982
LIVEBIRTHS PER 1000 FEMALES
71
70
69
68
67
66
65
64
63
62
61
60
59
58
57
56
55
54
53
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
YEAR
LEGEND: AREA
ALBERTA
CANADA

Table 2.3 This table shows the age-specific livebirth rates in Alberta and Canada during 1972-82.

- the rates in Alberta were (for the most part) greater than the rates in Canada for the 10 - 34 year olds; for the 35 - 49 year olds the rates in Alberta and Canada were approximately the same.

- the rates in Alberta decreased throughout 1972-82 for the 15 - 29 and 35 - 49 year olds; the rate for the 10 - 14 year old olds increased slightly; overall the rate for the 30 - 34 year olds increased by 9% between 1972 and 1982.

The increasing trend for the 30 - 34 year olds was not (and could not be) uncovered by the analysis of age-standardized rates (table 2.2). This drawback of age-standardization as an analytical tool will be taken up in more detail in chapter 3 in relation to mortality statistics.

Table 2.3 Age-Specific Livebirth Rates, 1972-1982

	Age-Specific Livebirth Rates*							
Year	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49
				Alberta				
1972	0.31	51.3	148.0	144.5	68.8	27.9	7.2	0.57
1973	0.42	48.7	144.9	140.7	65.5	22.3	5.8	0.48
1974	0.34	46.1	137.8	141.8	64.6	21.8	5.2	0.41
1975	0.41	47.8	136.3	139.5	65.5	20.3	4.9	0.40
1976	0.38	44.4	130.8	140.7	66.5	21.0	4.2	0.37
1977	0.42	43.4	125.7	136.3	68.6	20.4	3.8	0.30
1978	0.46	40.4	119.0	134.0	70.9	19.4	3.9	0.23
1979	0.34	39.1	117.3	134.2	69.0	19.3	3.9	0.18
1980	0.41	42.2	115.8	133.5	69.7	19.7	3.4	0.26
1981	0.50	43.6	112.0	134.6	72.0	20.8	3.8	0.30
1982	0.47	44.3	113.4	133.6	74.7	21.9	4.1	0.19
				Canada (minus Nfld)				
1972	0.27	38.3	123.6	134.0	71.8	29.9	7.7	0.57
1973	0.30	37.3	118.4	132.6	67.4	25.7	6.4	0.39
1974	0.28	35.5	114.2	132.7	66.9	23.0	5.4	0.36
1975	0.33	35.4	114.1	132.9	65.8	21.6	4.8	0.35
1976	0.33	33.4	110.3	129.9	65.6	21.1	4.3	0.29
1977	0.31	32.0	107.9	129.4	67.0	20.5	3.6	0.28
1978	0.33	29.8	103.3	127.4	67.0	19.1	3.6	0.26
1979	0.32	28.0	102.0	129.6	68.5	19.4	3.3	0.19
1980	0.30	27.5	100.2	128.0	68.1	19.3	3.1	0.18
1981	0.30	26.4	96.7	126.9	68.0	19.4	3.2	0.19
1982	0.31	26.5	95.4	124.7	68.6	20.2	3.1	0.16

* livebirths per 1000 females

Figure 2.4 This figure shows the percent of livebirths falling into the 1000 - 2499 gram weight category in Alberta and Canada during 1972-82. Low birthweight is usually defined to be birthweight less than 2500 grams, and a generally accepted lower limit of viability is 1000 grams; hence the range selected. However with advances in medical care it can be anticipated that this lower limit will have to be adjusted downward in the future.

Although low birthweight is frequently taken as evidence of a neglected pregnancy, it may also reflect a high risk pregnancy that was saved by good quality obstetric and perinatal care. For this reason birthweight statistics should be interpreted with caution. Table 2.4 in Appendix C has details on other weight categories.

* the percent of livebirths in the 1000 - 2499 gram weight category in Alberta was greater than the percent in Canada throughout 1972-82, although the differences were not always significant.

* overall the percent of livebirths in the 1000 - 2499 gram weight category in Alberta decreased by 25% between 1972 and 1982.

Figure 2.4

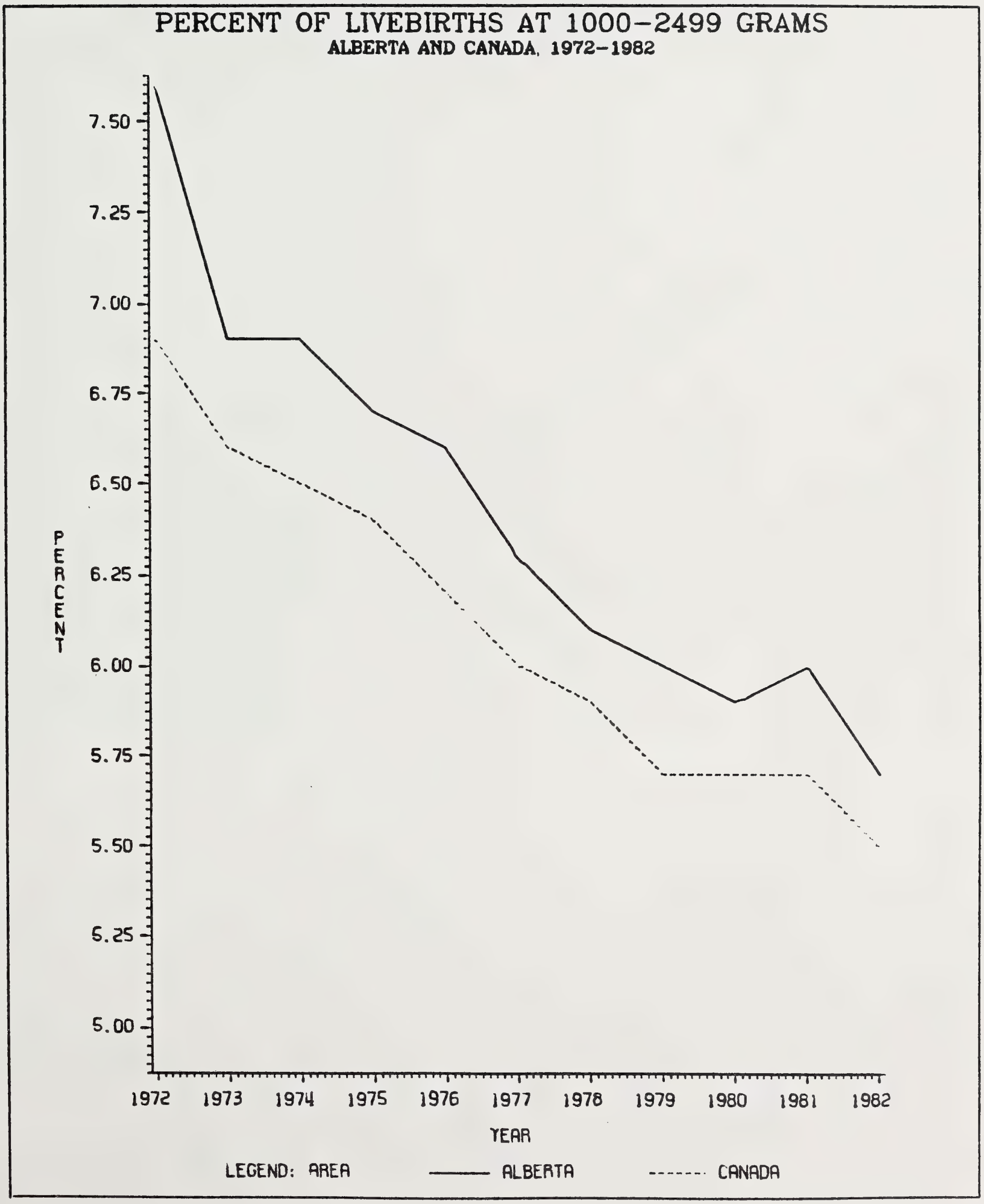
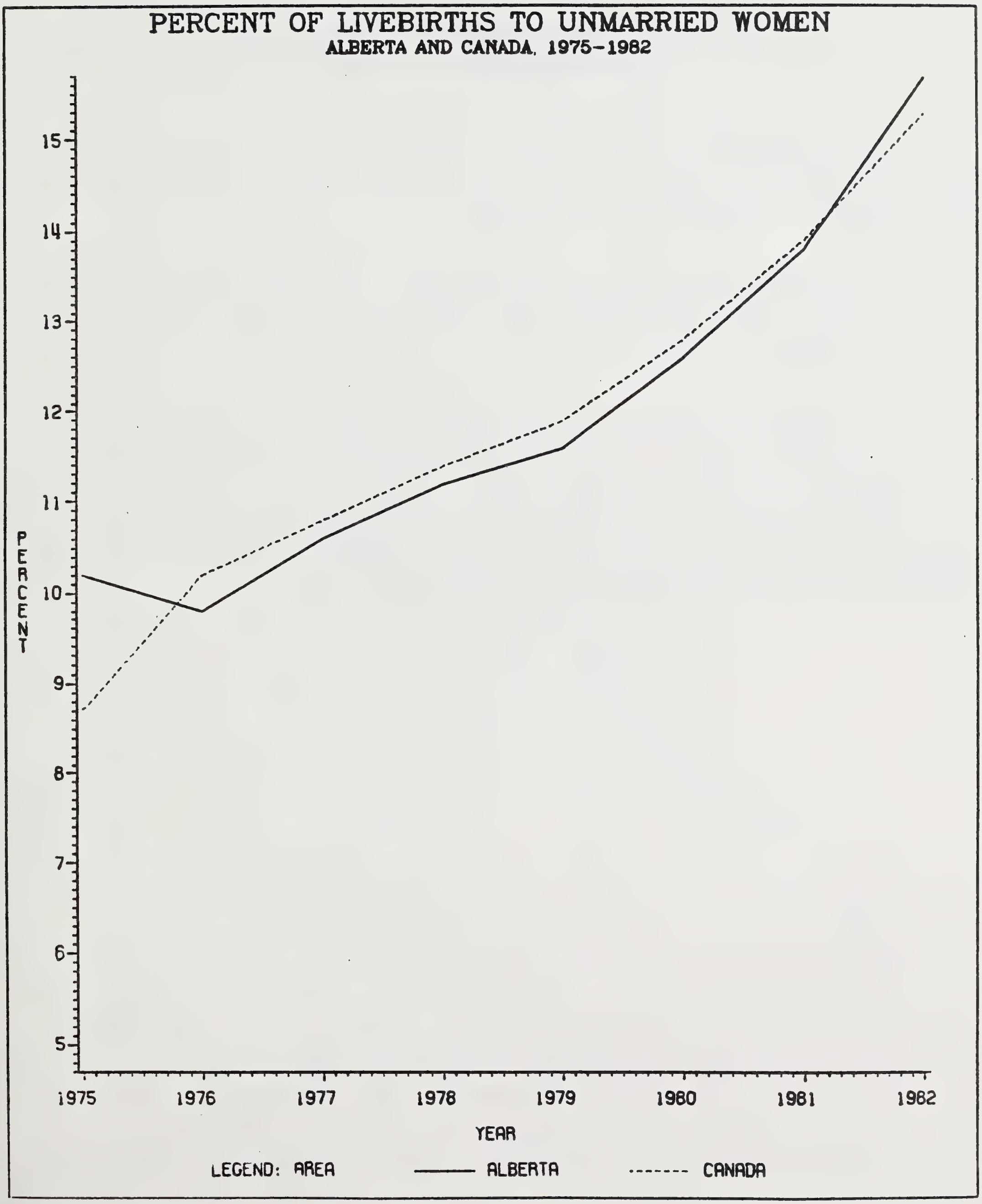

PERCENT OF LIVEBIRTHS AT 1000-2499 GRAMS
ALBERTA AND CANADA, 1972-1982
PERCENT
7.50
7.25
7.00
6.75
6.50
6.25
6.00
5.75
5.50
5.25
5.00
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
YEAR
LEGEND: AREA
ALBERTA
CANADA

Figure 2.5 This figure shows the percent of livebirths born to unmarried women in Alberta and Canada during 1975-82. The term unmarried is defined to be any state other than legal union.

- the percent of livebirths to unmarried women in Alberta was virtually equal to the percent in Canada during 1976-82.
- overall the percent in Alberta increased by 54% between 1975 and 1982.

Figure 2.5


PERCENT OF LIVEBIRTHS TO UNMARRIED WOMEN
ALBERTA AND CANADA, 1975-1982
PERCENT
15
14
13
12
11
10
9
8
7
6
5
1975
1976
1977
1978
1979
1980
1981
1982
YEAR
LEGEND: AREA
ALBERTA
CANADA

2.2 Stillbirths

Figure 2.6 This figure shows the age-standardized stillbirth ratios in Alberta and Canada during 1972-81. The stillbirth ratio is defined by

$$\frac{\text{stillbirths}}{\text{livebirths}} \times 1000$$

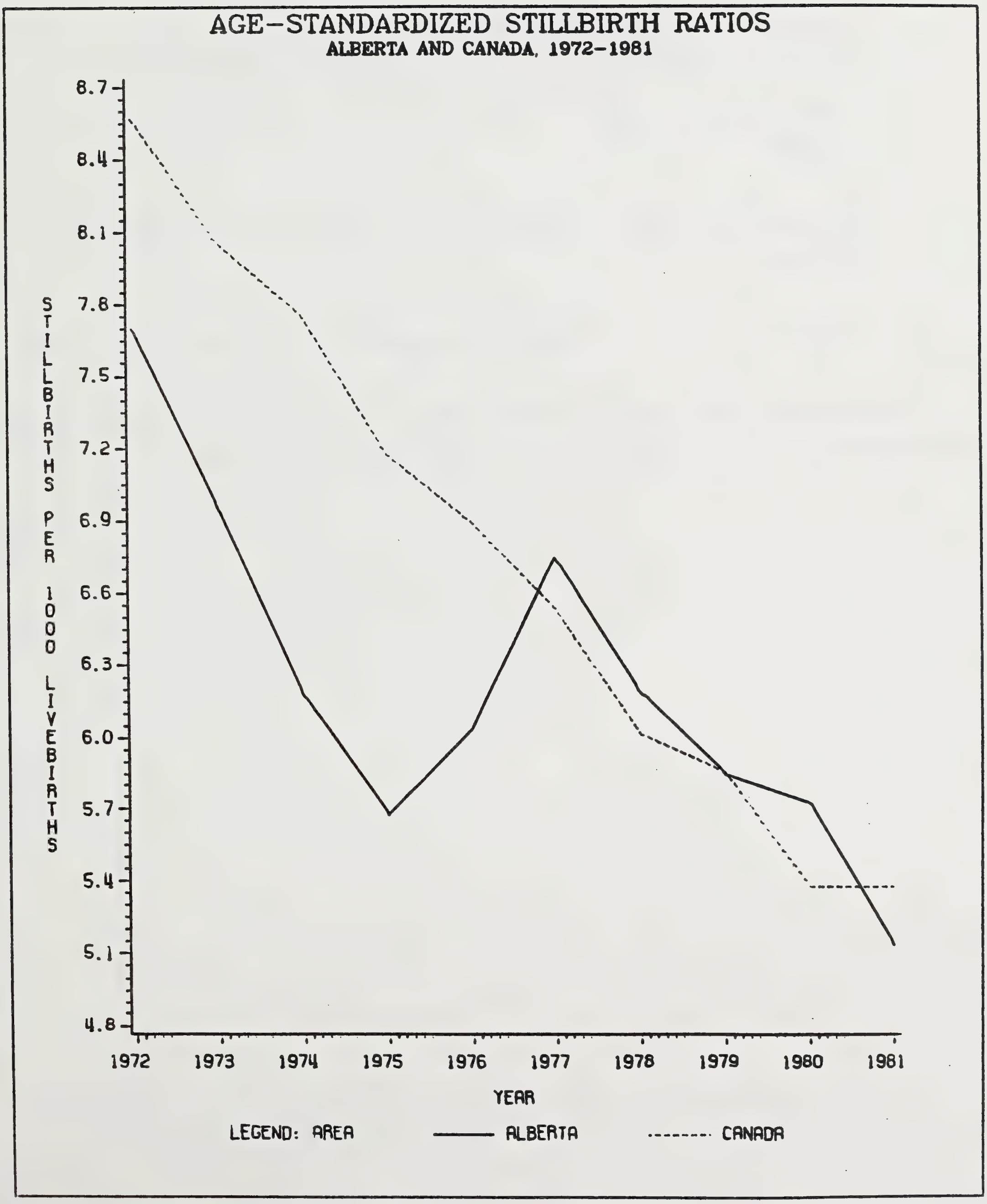
It is the number of stillbirths relative to the number of livebirths. Since stillbirth statistics are less reliable than might be wished, stillbirth ratios should be interpreted with caution.

* the stillbirth ratio in Alberta was less than the ratio in Canada until about 1976; after 1976 the ratios in Alberta and Canada were similar.

* overall the ratio in Alberta decreased by 33% between 1972 and 1981.

Part of the variability in the Alberta ratios may be accounted for by the small numbers of stillbirths involved, with subsequent year to year variation. This may partly explain the abrupt changes around 1976.

Figure 2.6


AGE-STANDARDIZED STILLBIRTH RATIOS
ALBERTA AND CANADA, 1972-1981
STILLBIRTHS PER 1000 LIVEBIRTHS
8.7
8.4
8.1
7.8
7.5
7.2
6.9
6.6
6.3
6.0
5.7
5.4
5.1
4.8
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
YEAR
LEGEND: AREA
ALBERTA
CANADA

2.3 Therapeutic Abortions

Figure 2.7 This figure shows the age-standardized therapeutic abortion rates in Alberta and Canada during 1972-81. The therapeutic abortion rate is defined by

$$\frac{\text{therapeutic abortions}}{\text{population size}} \times 1000 \quad .$$

* the rate in Alberta was greater than the rate in Canada throughout 1972-81.

* the rate in Alberta increased until about 1979 and then began to decrease.

* overall the rate in Alberta increased by 17% between 1972 and 1981.

The extremely low rates in Canada during 1972-1974 are accounted for by underreporting in the early stages of a data collecting program.

Figure 2.7

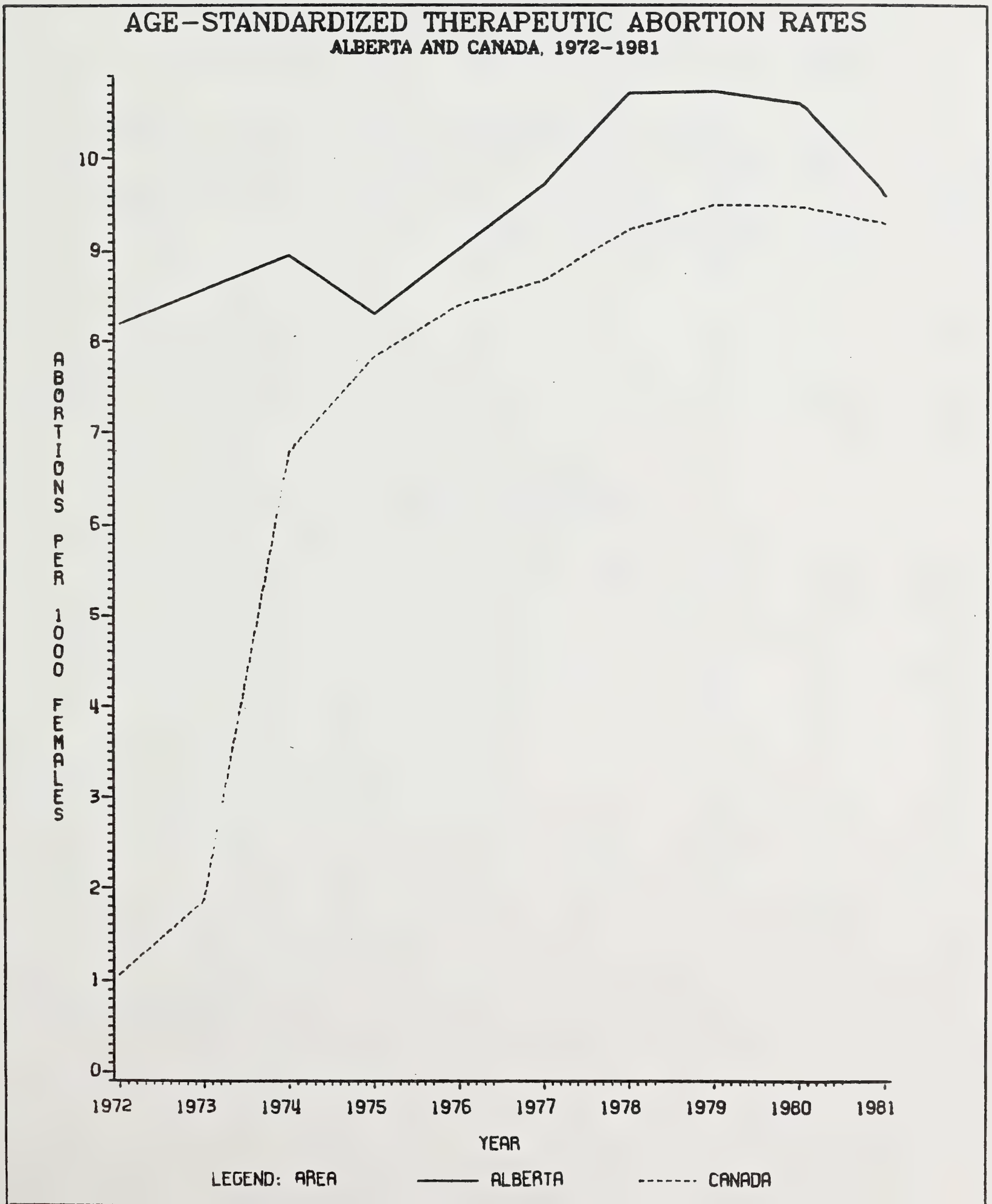

AGE-STANDARDIZED THERAPEUTIC ABORTION RATES
ALBERTA AND CANADA, 1972-1981
ABORTIONS PER 1000 FEMALES
0
1
2
3
4
5
6
7
8
9
10
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
YEAR
LEGEND: AREA
ALBERTA
CANADA

Table 2.8 This table shows the age-specific therapeutic abortion rates in Alberta and Canada during 1972-81.

- the rates in Alberta were consistently greater than the rates in Canada for the 10 - 24 year olds; for the 25 - 44 year olds the opposite tended to be true.
- overall the rates in Alberta increased during 1972-81 for the 10 - 29 year olds, and decreased for the 30 - 49 year olds.

Since the 15 - 24 year olds have the largest therapeutic abortion rates, the age-standardized rate (table 2.7) is largely a reflection of the experience of this age group. The pattern for the 25 - 44 year olds tends to be obscured by the standardization process.

Table 2.8 Age-Specific Therapeutic Abortion Rates, 1972-81

	Age-Specific Therapeutic Abortion Rates*							
Year	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Alberta								
1972	0.51	16.4	13.7	8.3	7.0	6.3	3.5	0.43
1973	0.72	17.0	15.8	9.1	6.5	5.5	2.7	0.18
1974	0.64	18.0	17.4	8.5	6.7	5.6	2.6	0.18
1975	0.75	17.6	15.1	9.2	5.5	4.5	2.2	0.44
1976	0.78	19.4	17.2	9.4	6.1	4.2	1.9	0.26
1977	0.85	19.9	19.2	10.7	6.4	4.2	1.8	0.30
1978	1.0	22.4	21.1	11.5	7.2	4.7	1.8	0.23
1979	0.80	22.8	21.4	12.2	6.6	4.0	1.4	0.27
1980	0.82	22.2	21.3	11.7	6.9	4.0	1.6	0.18
1981	0.73	20.3	19.4	10.3	6.3	3.5	1.5	0.16
Canada (minus Nfld)								
1972	0.08	2.1	1.8	1.1	0.93	0.87	0.46	0.06
1973	0.15	3.2	3.3	2.1	1.7	1.4	0.75	0.09
1974	0.45	11.5	12.3	8.4	6.1	4.5	2.0	0.22
1975	0.53	13.4	14.0	10.2	6.9	5.0	2.2	0.22
1976	0.60	14.1	15.3	11.0	7.5	5.1	2.3	0.24
1977	0.62	14.9	16.0	11.2	7.5	4.9	2.1	0.31
1978	0.58	15.9	17.3	11.9	7.8	5.0	2.1	0.24
1979	0.65	16.5	18.2	12.2	7.9	4.8	1.9	0.23
1980	0.59	16.5	18.3	12.1	7.9	4.5	1.9	0.21
1981	0.59	15.9	18.1	12.0	7.7	4.4	1.8	0.16

* per 1000 females

Figure 2.9 This figure shows the age-standardized therapeutic abortion ratios in Alberta and Canada during 1972-81. The therapeutic abortion ratio is defined by

$$\frac{\text{therapeutic abortions}}{\text{livebirths}} \times 100 .$$

It is the number of therapeutic abortions relative to the number of livebirths.

- the relatively large age-standardized livebirth and therapeutic abortion rates in Alberta (figures 2.2 and 2.7) combined to produce a therapeutic abortion ratio that was similar to the ratio in Canada, from about 1975 onward. For 1972-74, see the remarks made regarding the therapeutic abortion statistics for Canada (table 2.7).

- the ratio in Alberta increased until about 1979 and then began to decrease; this is a consequence of the recent increase in livebirth rates coupled with the recent decrease in therapeutic abortion rates.

- overall the ratio in Alberta increased by 36% between 1972 and 1981.

The similarity of the therapeutic abortion ratios in Alberta and Canada means that relative to the numbers of livebirths there are similar numbers of therapeutic abortions being performed.

Figure 2.9

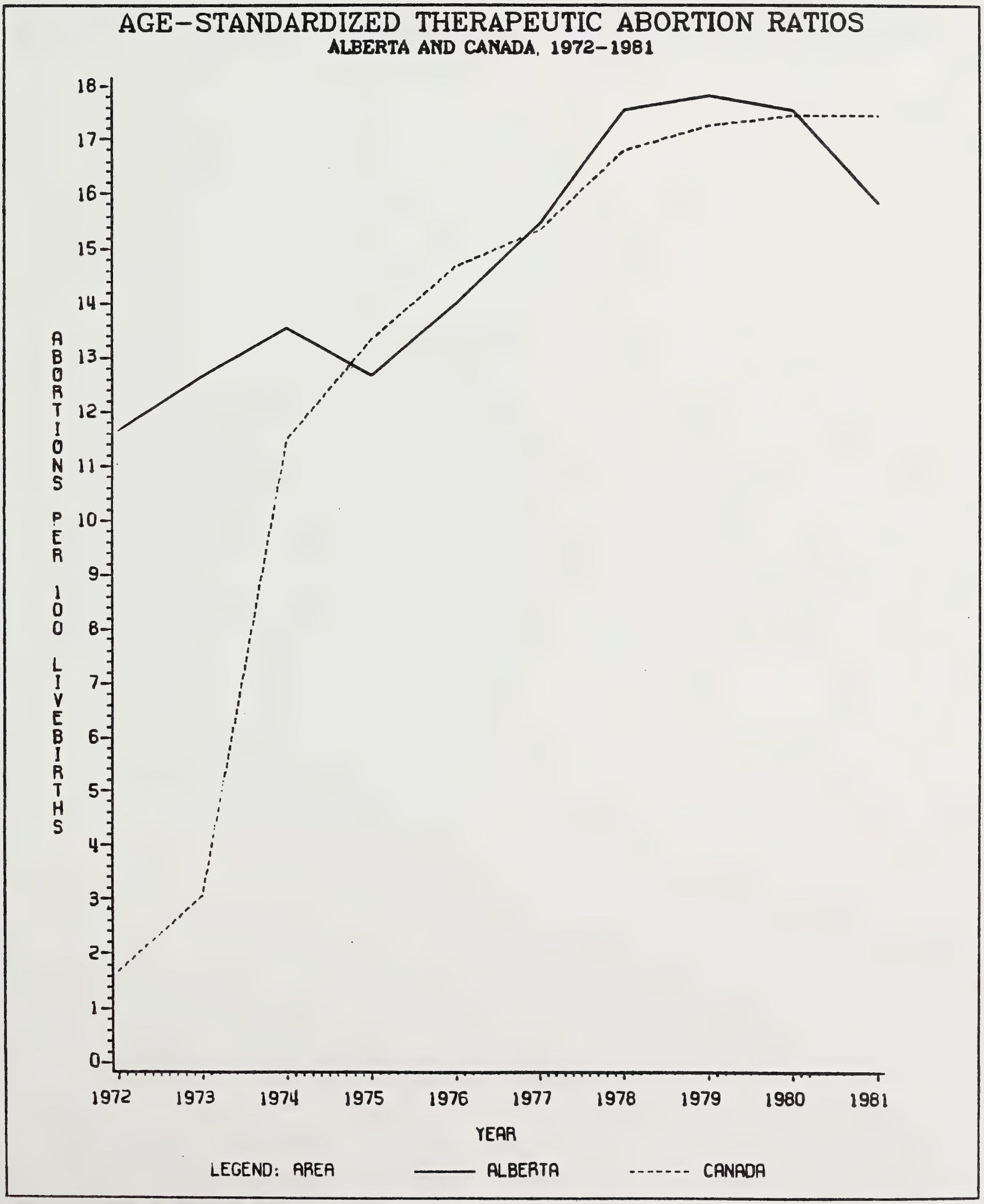

AGE-STANDARDIZED THERAPEUTIC ABORTION RATIOS
ALBERTA AND CANADA, 1972-1981
ABORTIONS PER 100 LIVEBIRTHS
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
YEAR
LEGEND: AREA
ALBERTA
CANADA

Figure 2.10 This figure shows the percent of therapeutic abortions performed on unmarried women in Alberta and Canada during 1972-81. The term unmarried is defined to be any state other than legal union.

* the percent in Alberta was significantly greater than the percent in Canada from 1973 onward.

* overall the percent in Alberta increased by 15% between 1972 and 1981.

Figure 2.10

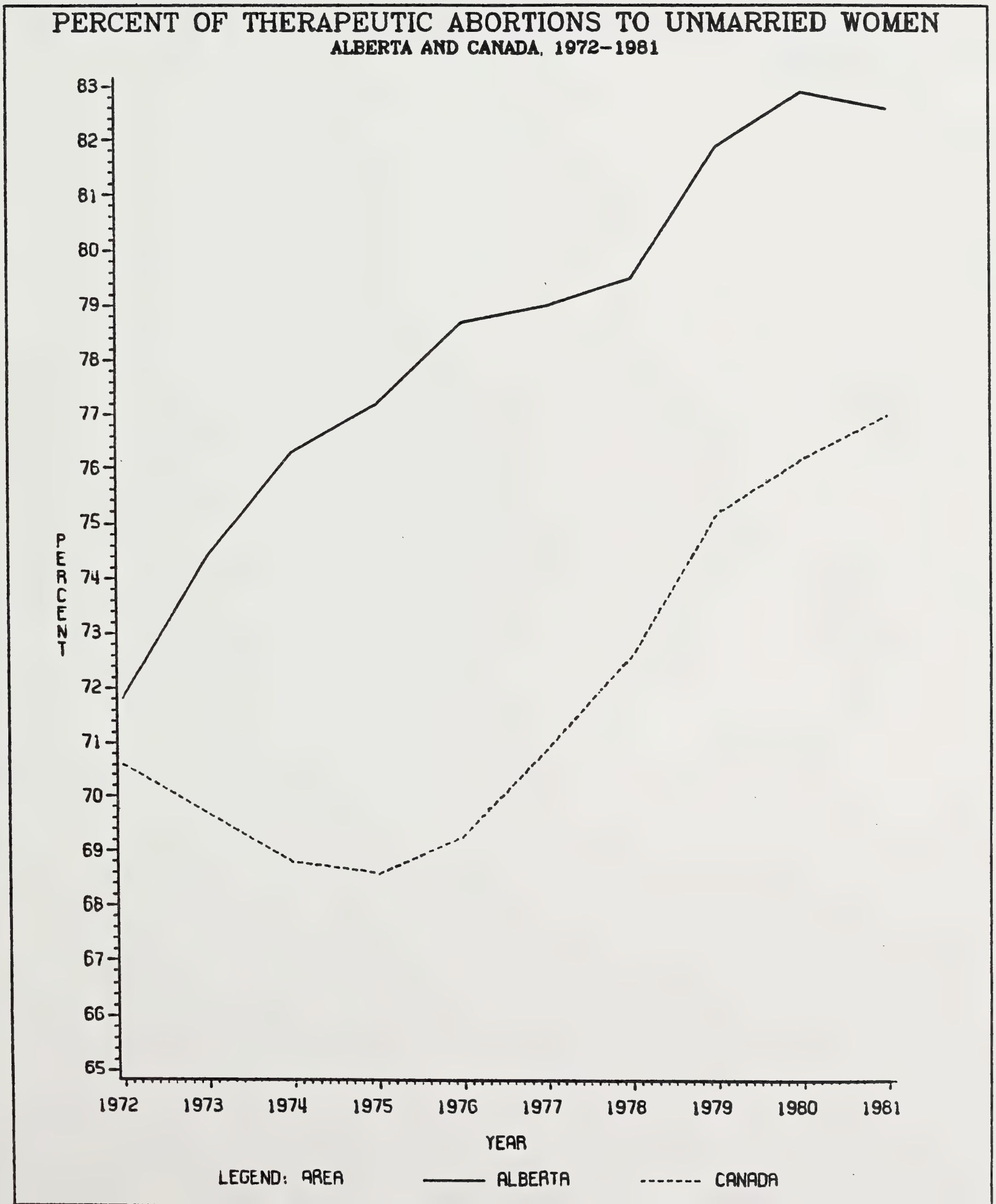
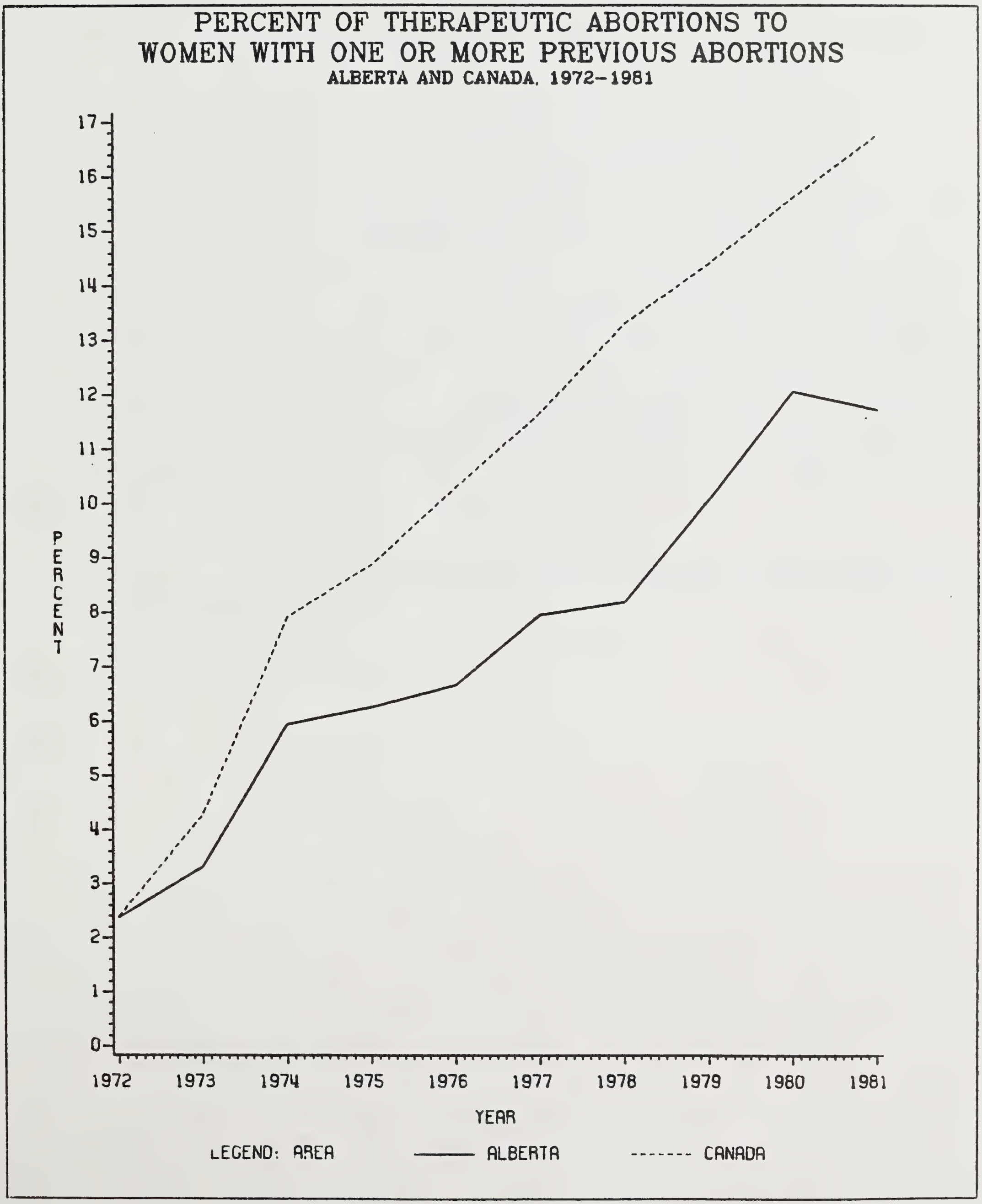

PERCENT OF THERAPEUTIC ABORTIONS TO UNMARRIED WOMEN
ALBERTA AND CANADA, 1972–1981
83
82
81
80
79
78
77
76
75
74
73
72
71
70
69
68
67
66
65
PERCENT
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
YEAR
LEGEND: AREA
ALBERTA
CANADA

Figure 2.11 This figure shows the percent of therapeutic abortions performed on women with a history of previous therapeutic abortion in Alberta and Canada during 1972-81.

- the percent in Alberta was significantly less than the percent in Canada from 1973 onward.

- overall the percent in Alberta increased by almost 400% between 1972 and 1981.

Figure 2.11


PERCENT OF THERAPEUTIC ABORTIONS TO
WOMEN WITH ONE OR MORE PREVIOUS ABORTIONS
ALBERTA AND CANADA, 1972-1981
PERCENT
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
YEAR
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
LEGEND: AREA
ALBERTA
CANADA

3. MORTALITY

3. MORTALITY

This chapter presents a fairly detailed treatment of mortality in Alberta. The discussion first deals with deaths in the youngest age groups, and then proceeds to an investigation of mortality in the population as a whole.

Generally speaking, mortality statistics are believed to be complete. However there are questions regarding accuracy, for reasons relating to the underlying cause of death. The underlying cause is the disease (condition, event) which set in motion the sequence of events leading up to death. It is entered on the death certificate by a physician and thereafter becomes 'the' cause of death. It is not always possible for a physician to single out one cause as most important when several may have coexisted in the same patient. Furthermore, the identification of certain occult disorders often presents a difficult diagnostic challenge. This is especially true in aged individuals with multiple conditions. For these reasons, and others, errors relating to cause of death are to be found in mortality statistics. However studies by Statistics Canada have shown that the rate of error in cause of death classification is not large (see reference 4).

The mortality statistics used in this report have been compiled according to province of residence.

3.1 Perinatal and Infant Deaths

Figure 3.1 This figure shows perinatal death rates in Alberta and Canada during 1972-82. Perinatal deaths consist of stillbirths and deaths within the first week of life. The perinatal death rate is defined by

$$\frac{\text{stillbirths + first-week deaths}}{\text{stillbirths + livebirths}} \times 1000 .$$

Since stillbirths and first-week deaths are approximately equal, and since stillbirths statistics are somewhat unreliable, as described in the introduction to this chapter, perinatal death rates must be interpreted with caution.

- * the perinatal death rate in Alberta was somewhat less than the rate in Canada until about 1979; after 1979 the rates tended to converge.
- * overall the rate in Alberta decreased by 45% between 1972 and 1982.

Figure 3.1

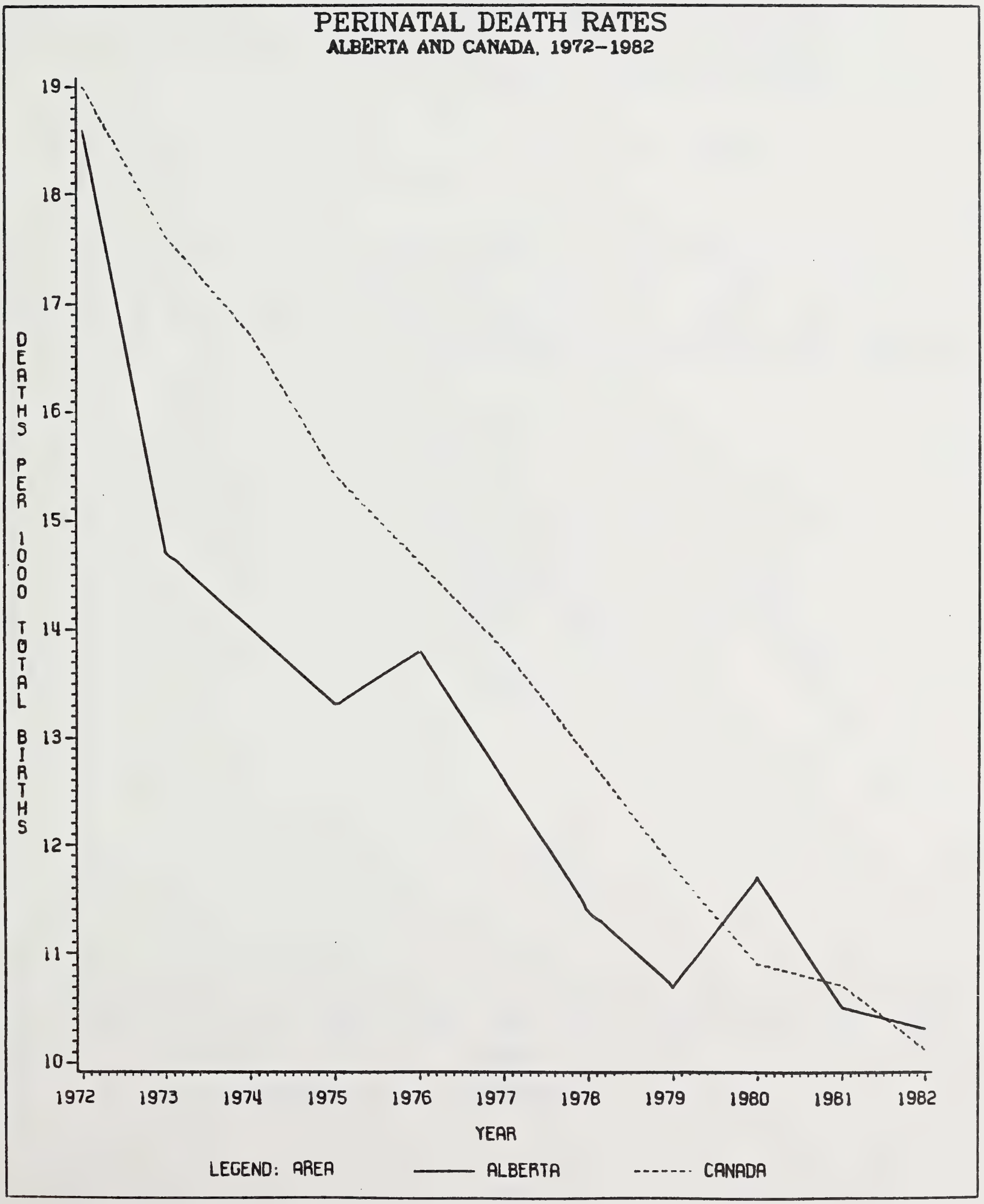

PERINATAL DEATH RATES
ALBERTA AND CANADA, 1972-1982
DEATHS PER 1000 TOTAL BIRTHS
19
18
17
16
15
14
13
12
11
10
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
YEAR
LEGEND: AREA
ALBERTA
CANADA

Figure 3.2 This figure shows infant death rates in Alberta and Canada during 1972-82. Infant deaths consist of deaths within the first year of life. The infant death rate is defined by

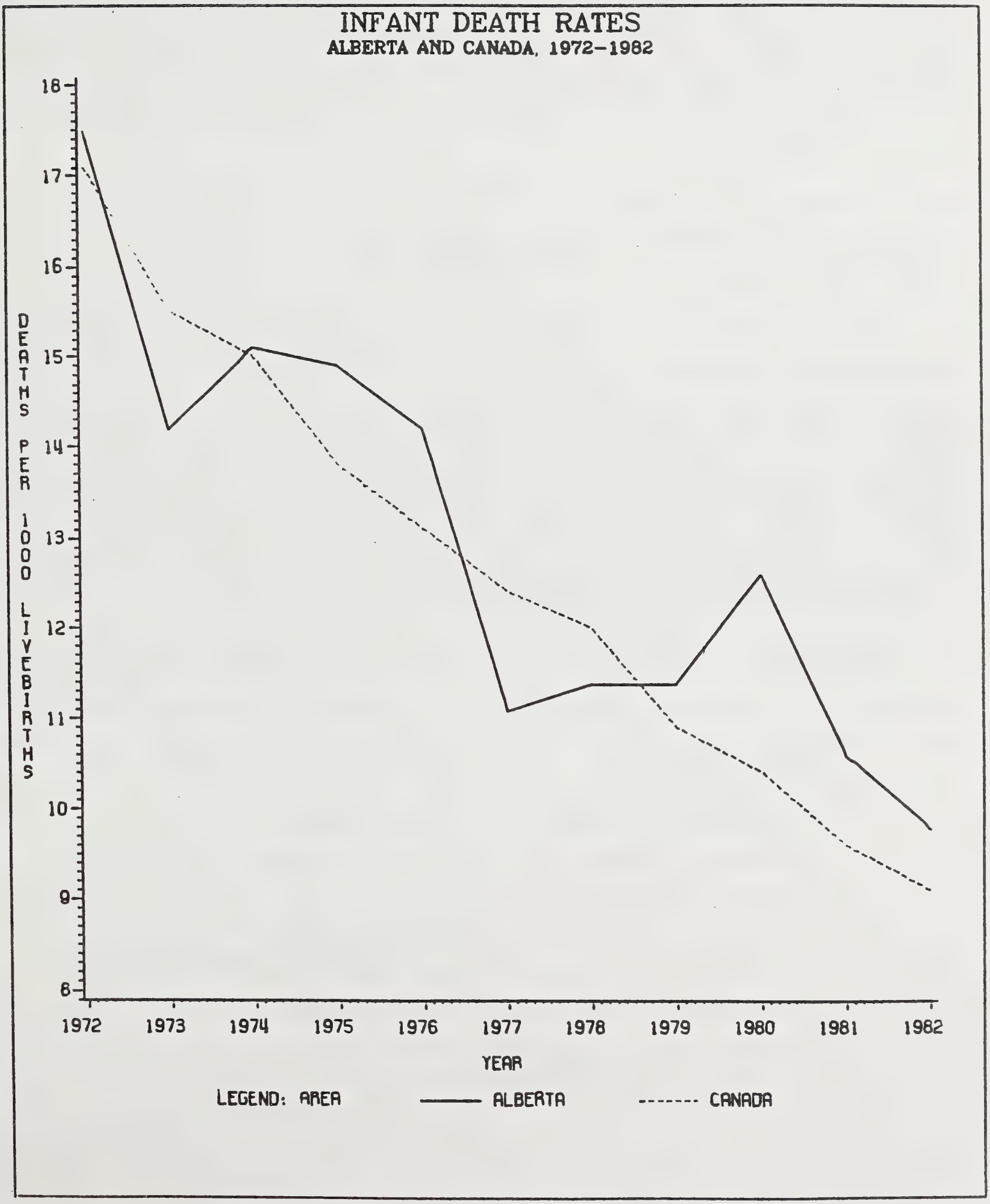
$$\frac{\text{infant deaths}}{\text{livebirths}} \times 1000 \quad .$$

- * the infant death rate in Alberta fluctuated about the rate in Canada throughout 1972-82, but for the most part there were no significant differences between the two.

- * overall the rate in Alberta decreased by 44% between 1972-82.

A comparison of figures 3.1 and 3.2 shows that the perinatal and infant death rates in Alberta were quite similar during 1972-82. This is due to the fact that the numbers of stillbirths, first-week deaths and infant deaths after the first week are all approximately equal.

Figure 3.2


INFANT DEATH RATES
ALBERTA AND CANADA, 1972-1982
DEATHS PER 1000 LIVEBIRTHS
18
17
16
15
14
13
12
11
10
9
8
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
YEAR
LEGEND: AREA
ALBERTA
CANADA

3.2 Methodology for Ranking Causes of Death

The task of identifying those causes of death having the greatest impact on the population must first of all deal with two fundamental matters of definition: (1) a system of nomenclature needs to be adopted so that there is a framework within which conditions resulting in death can be unambiguously labelled and categorized, and (2) an index has to be chosen which will enable the causes of death so defined to be measured (according to some scale) with respect to their impact on the population. With these issues resolved it is then a straightforward matter to rank the causes of death and identify those which are "most important".

3.2.1 Nomenclature

The system of nomenclature that will be adopted in this report is the authoritative International Classification of Diseases - ninth edition (ICD-9), which has been in use since 1979. Revised editions appear about every ten years, and methods are available for translating codes from one edition to the next. The ICD-9 has literally thousands of codes for labelling causes of death. It is obviously taking too narrow a perspective to work at this level of detail. In this report two families of causes of death will be considered, both defined by aggregating codes in the ICD-9.

The ICD-9 is divided into seventeen major chapters which deal with diseases of a particular body system, or with more generalized conditions. These chapters represent a natural aggregation of diseases into broad categories of causes of death. Some of the chapters are:

- infectious and parasitic diseases (chapter 1)
- neoplasms (chapter 2)
- mental disorders (chapter 5)
- diseases of the circulatory system (chapter 7)
- diseases of the respiratory system (chapter 8)
- diseases of the digestive system (chapter 9)
- complications of pregnancy, childbirth, and the puerperium (chapter 11)

- symptoms, signs, and ill-defined conditions (chapter 16)
- external causes of injury and poisoning (chapter 17).

It should be noted that the chapter for neoplasms includes all tumours, both benign and malignant, regardless of the organ system involved. Also, infections of a specific organ system are classified in the chapter for that organ system, as opposed to being placed in the chapter devoted to infections (chapter 1). So pneumonias, for example, are coded in the chapter for diseases of the respiratory system. External causes are, generally speaking, traumatic episodes leading to death, such as motor vehicle accidents.

In the first part of this chapter causes of death will be defined to "be" the ICD-9 chapters. That is, seventeen causes of death will be considered which encompass all conditions leading up to death. This will provide an overview of mortality from a broad perspective, and prepare the ground for a somewhat more specific analysis to follow.

The ICD-9 Underlying Cause-of-Death Lists is a widely used reference which consists of several aggregated versions of ICD-9; in particular there is the List of 282 Selected Causes of Death. In the second part of this chapter, a number of causes of death from the List will be studied. These selected causes do not exhaust all possible conditions leading up to death as is the case with the ICD-9 chapters, but they do represent a group of causes which merit close attention. The selected causes of death to be studied here consist of:

- lung cancer (162)
- female breast cancer (174)
- ischemic heart disease (410 - 414)
- cerebrovascular disease (430 - 438)
- pneumonia (480 - 486)
- liver cirrhosis (571)
- motor vehicle accidents (E810 - E819)
- suicide (E950 - E959).

The codes according to the ICD-9 are shown in parentheses. With some imprecision, ischemic heart disease (IHD) may be thought of as "heart attack", and cerebrovascular disease (CVD) as "stroke". Motor vehicle accidents (MVA) refers only to traffic accidents. This list can be made to exhaust all possible conditions by the addition of a cause called "other-causes". This last cause will be implicit in the subsequent discussions but will not be analysed as such.

A preliminary version of this report also included the following causes of death:

* colon cancer (153 - 154)
* lymphatic and hematopoietic tissue cancer (200 - 208)
* diabetes mellitus (250).

However the finding for these conditions were less striking than those for the preceding causes, and so in the interest of brevity they were excluded from the report.

In order to keep terminology consistent it is necessary to define a cause of death called "all-causes", which simply refers to the occurrence of death regardless of underlying condition. In the discussion to follow, the first family of causes will be referred to as the "ICD-9 chapter causes", and the second family as the "selected causes".

3.2.2 Indices of Mortality

The indices that will be used to measure the impact of a cause of death are: (1) number of deaths, (2) age-standardized death rate, and (3) potential years of life lost. Appendix A contains explicit formulas for computing the latter two indices.

The number of deaths is the most straightforward of the three indices, and provides a readily appreciated measure of the burden placed on the population by a cause of death.

The age-standardized death rate is a measure of the risk posed by a cause of death. Since it adjusts for differences in age distribution it is ideally suited to inter-population comparisons. The age-standardized death rate will tend to be large for those causes of death affecting a significant proportion of the population, and so will tend to rank causes of death in a manner similar to the way they are ranked by number of deaths.

The potential years of life lost is a measure of the years of life wasted due to premature mortality (before age 70). Since it gives relatively greater weight to deaths occurring in the early years, it will tend to be large for those causes affecting the younger members of the population, even if the actual number of deaths is relatively small.

It is clear that by summing the number of deaths for individual causes the result will be the number of deaths for all-causes. It can be shown that the indices age-standardized death rate and potential years of life lost also have this additive property. Thus it is meaningful to speak of the percent contribution that the index for an individual cause makes to the index for all-causes in the case of all three indices under consideration. This will turn out to be particularly useful when Alberta and Canada are being compared according to the latter two indices, since the actual values of these indices do not lend themselves easily to such comparisons.

3.3 ICD-9 Chapter Causes of Death

This section deals with causes of death according to the "ICD-9 chapter" definition. In the following remarks it is implicit that males are only being compared to males, and females only to females. If a particular sex is not specified then whatever observation is being made applies to both males and females. (This convention will be adopted throughout the remainder of the report.)

All of the tables in this section refer to deaths in Alberta and Canada in 1982.

Table 3.3 This table shows the five most important causes of death according to a number of deaths criterion.

- the five most important causes of death in Alberta and Canada were:
    - circulatory disease
    - neoplasms
    - external causes
    - respiratory disease
    - digestive disease.

- the percentage contributions of the various causes were similar in Alberta and Canada (and hence the ordering is similar as well).

- taken together the five causes accounted for over 85% of deaths in Alberta and Canada, with circulatory disease and neoplasms alone accounting for over 60%.

Table 3.3 ICD-9 Chapter Causes of Death, Ranked by Number of Deaths, 1982

Alberta			Canada		
Cause	Number	%	Cause	Number	%
Male					
circulatory	3,047	39.4	circulatory	43,502	44.4
neoplasms	1,669	21.6	neoplasms	23,627	24.1
external	1,074	13.9	external	10,019	10.2
respiratory	636	8.2	respiratory	7,571	7.7
digestive	354	4.6	digestive	3,797	3.9
other	951	12.3	other	9,429	9.7
all-causes	7,731	100	all-causes	97,945	100
Female					
circulatory	2,321	44.3	circulatory	36,842	48.3
neoplasms	1,224	23.4	neoplasms	18,717	24.5
external	392	7.5	respiratory	4,663	6.1
respiratory	338	6.5	external	4,114	5.4
digestive	224	4.3	digestive	3,152	4.1
other	737	14.0	other	8,805	11.5
all-causes	5,236	100	all-causes	76,293	100

Table 3.4 This table shows the five most important causes of death according to an age-standardized death rate criterion. The death rate (for a given cause) is defined by

$$\frac{\text{deaths}}{\text{population size}} \times 100{,}000 \quad .$$

It is a measure of the risk of dying (of that cause).

* the causes identified are the same as those in table 3.3, and the percent contributions are virtually identical as well; this is due to the fact that age-standardization is according to a recent Alberta population.

* for circulatory disease and neoplasms the rate in Alberta was less than the rate in Canada; for external causes, respiratory disease and digestive disease the opposite was true.

* the rate in Alberta for all-causes was marginally less than the rate in Canada.

* taken together the five causes accounted for over 85% of the risk of dying in Alberta, with circulatory disease and neoplasms alone accounting for over 60%.

Table 3.4 ICD-9 Chapter Causes of Death, Ranked by Age-Standardized Death Rates, 1982

Alberta			Canada		
Cause	Rate*	%	Cause	Rate*	%
			Male		
circulatory	259.4	39.5	circulatory	287.4	43.0
neoplasms	141.7	21.6	neoplasms	154.6	23.1
external	90.6	13.8	external	81.0	12.1
respiratory	54.2	8.3	respiratory	50.9	7.6
digestive	30.0	4.6	digestive	25.4	3.8
other	80.8	12.3	other	69.9	10.4
all-causes	656.7	100	all-causes	669.2	100
			Female		
circulatory	202.9	44.2	circulatory	216.4	46.2
neoplasms	107.4	23.4	neoplasms	116.0	24.8
external	34.5	7.5	external	29.9	6.4
respiratory	29.6	6.4	respiratory	28.0	6.0
digestive	19.6	4.3	digestive	19.2	4.1
other	64.7	14.1	other	59.2	12.6
all-causes	458.7	100	all-causes	468.8	100

* deaths per 100,000 males or females

Table 3.5 This table shows the five most important causes of death according to a potential years of life lost criterion.

* the causes identified are the same as those in tables 3.3 and 3.4, except that for Albertans, symptoms (short for: symptoms, signs, and ill-defined conditions) has replaced respiratory disease.

* external causes ranked at or near the top in Alberta and Canada, and in particular ranked above circulatory disease; as pointed out in section 3.2.2 this is because so many of the deaths due to external causes occur in the younger members of the population.

* taken together the five causes accounted for over 85% of the potential years of life lost in Alberta and Canada, with external causes alone accounting for over 30%.

Table 3.5 Potential Years of Life Lost, Ranked by ICD-9 Chapter, 1982

Alberta			Canada		
Cause	PYLL	%	Cause	PYLL	%
		Male			
external	35,415	47.7	external	305,161	40.4
circulatory	12,342	16.6	circulatory	181,430	24.0
neoplasms	10,913	14.7	neoplasms	144,269	19.1
symptoms	4,679	6.3	digestive	29,693	3.9
digestive	3,492	4.7	respiratory	23,782	3.2
other	7,400	10.0	other	70,569	9.3
all-causes	74,241	100	all-causes	754,904	100
		Female			
external	10,851	31.9	neoplasms	133,146	35.5
neoplasms	10,081	29.7	external	93,886	25.0
circulatory	5,659	16.7	circulatory	69,077	18.4
symptoms	1,527	4.5	digestive	15,630	4.2
digestive	1,397	4.1	respiratory	15,360	4.1
other	4,468	13.1	other	48,465	12.9
all-causes	33,983	100	all-causes	375,564	100

3.4 Selected Causes of Death

This section deals with the "selected causes" of death. It represents a natural extension of the investigations of the preceding section since the selected causes in fact belong to the ICD-9 chapters identified as being most important. The assignment of causes is as follows:

neoplasms	- lung cancer
	- breast cancer
circulatory diseases	- ischemic heart disease (IHD)
	- cerebrovascular disease (CVD)
respiratory disease	- pneumonia
digestive disease	- cirrhosis
external causes	- motor vehicle accidents (MVA)
	- suicide

Tables 3.6 - 3.8 of this section will be seen to correspond to tables 3.3 - 3.5 of the preceding section in that the same analyses are being performed. In each of tables 3.6 - 3.8 the percent contributions appearing represent the percent of the index for all-causes, just as in tables 3.3 - 3.5. What differs is that other-causes is not shown and so the totals do not equal 100%.

All of the tables in this section refer to deaths in Alberta and Canada in 1982.

Table 3.6 This table shows the causes of death ranked according to a number of deaths criterion.

* IHD was by far the most important cause in Alberta and Canada, accounting for approximately as many deaths as the other causes combined.

* taken together the causes accounted for approximately 50% of deaths in Alberta and Canada.

Table 3.6 Selected Causes of Deaths, Ranked by Number of Deaths, 1982

Alberta			Canada		
Cause	Number	%	Cause	Number	%
Male					
IHD	1,909	24.7	IHD	28,777	29.4
lung cancer	489	6.3	lung cancer	7,717	7.9
CVD	458	5.9	CVD	6,329	6.5
MVA	321	4.2	MVA	2,938	3.0
suicide	291	3.8	suicide	2,722	2.8
pneumonia	236	3.1	pneumonia	2,653	2.7
cirrhosis	164	2.1	cirrhosis	1,588	1.6
total	3,868	50.1	total	52,724	53.9
Female					
IHD	1,140	21.8	IHD	20,225	26.5
CVD	592	11.3	CVD	8,183	10.7
breast cancer	224	4.3	breast cancer	3,648	4.8
pneumonia	180	3.4	pneumonia	2,460	3.2
MVA	140	2.7	lung cancer	2,423	3.2
lung cancer	135	2.6	MVA	1,138	1.5
suicide	68	1.3	cirrhosis	798	1.0
cirrhosis	61	1.2	suicide	795	1.0
total	2,540	48.6	total	39,670	51.9

Table 3.7 This table shows the causes of death ranked according to an age-standardized death rate criterion.

* the percent contributions are virtually identical to those in table 3.6 (for reasons given in connection with table 3.4).

* for males, the rates in Alberta for IHD, lung cancer and CVD were less than the rates in Canada; for MVA, suicide, pneumonia and cirrhosis the opposite was true.

* for females, the rates in Alberta for IHD, lung cancer and breast cancer were less than rates in Canada; for CVD, MVA, suicide, pneumonia and cirrhosis the opposite was true.

* taken together the causes accounted for approximately 50% of the risk of dying in Alberta.

Table 3.7 Selected Causes of Death, Ranked by Age-Standardized Death Rates, 1982

Alberta			Canada		
Cause	Rate*	%	Cause	Rate*	%
Male					
IHD	162.4	24.7	IHD	188.9	28.2
lung cancer	41.5	6.3	lung cancer	49.4	7.4
CVD	39.1	6.0	CVD	42.3	6.3
MVA	27.1	4.1	MVA	24.8	3.7
suicide	24.5	3.7	suicide	22.0	3.3
pneumonia	20.2	3.1	pneumonia	18.3	2.7
cirrhosis	13.9	2.1	cirrhosis	10.6	1.6
total	328.7	50.0	total	356.3	53.2
Female					
IHD	99.7	21.7	IHD	118.5	25.3
CVD	51.7	11.3	CVD	48.2	10.3
breast cancer	19.6	4.3	breast cancer	23.0	4.9
pneumonia	15.7	3.4	lung cancer	15.0	3.2
MVA	12.4	2.7	pneumonia	14.7	3.1
lung cancer	11.9	2.6	MVA	9.0	1.9
suicide	6.0	1.3	suicide	6.0	1.3
cirrhosis	5.8	1.2	cirrhosis	5.1	1.1
total	222.8	48.5	total	239.5	51.1

* deaths per 100,000 males or females

Table 3.8 This table shows the causes of death ranked according to a potential years of life lost criterion.

- * MVA, suicide and breast cancer demonstrate much greater percent contributions in this table than they did in tables 3.6 and 3.7 (since these causes tend to kill at a relatively young age).

- * the percent contribution of MVA plus suicides (external causes) was greater than the percent contribution of IHD plus CVD (circulatory disease) in both Alberta and Canada.

- * taken together the causes accounted for over 45% of the potential years of life lost in Alberta and Canada.

Table 3.8 Selected Causes of Death, Ranked by Potential Years of Life Lost, 1982

Alberta			Canada		
Cause	PYLL	%	Cause	PYLL	%
		Male			
MVA	12,322	16.6	IHD	130,463	17.3
suicide	9,318	12.6	MVA	108,811	14.4
IHD	8,360	11.3	suicide	82,543	10.9
lung cancer	2,463	3.3	lung cancer	41,888	5.6
cirrhosis	2,193	3.0	CVD	19,458	2.6
CVD	1,233	1.7	cirrhosis	18,623	2.5
pneumonia	605	0.81	pneumonia	7,765	1.0
total	36,494	49.3	total	409,551	54.3
		Female			
MVA	5,119	15.1	MVA	37,021	9.9
breast cancer	2,243	6.6	IHD	33,313	8.9
IHD	2,215	6.5	breast cancer	32,445	8.6
suicide	2,033	6.0	suicide	21,308	5.7
CVD	1,388	4.1	lung cancer	17,480	4.7
lung cancer	1,095	3.2	CVD	16,960	4.5
cirrhosis	895	2.6	cirrhosis	8,411	2.2
pneumonia	487	1.4	pneumonia	5,402	1.4
total	15,475	45.5	total	172,340	45.9

3.5 Trends in Death Rates for Selected Causes

Table 3.7 considered the age-standardized death rates of the selected causes in 1982. The results of that investigation indicate that Alberta and Canada may be experiencing different patterns of mortality. However a "snapshot" for one year gives no idea of progression over time, and in particular whether or not the rates observed represent a step in an ongoing trend or just random fluctuation. This section adds another dimension to the analysis initiated in table 3.7 by considering the trends of the selected causes in Alberta and Canada during 1972-82.

Figures 3.9 - 3.17 No attempt will be made to describe in detail the patterns in figures 3.9 to 3.17. The graphs provide a summary that is both eloquent and forceful. As an aid to organizing the major findings, the table opposite may prove helpful.

The column headed "order" gives the overall relationship (ordering) of the Alberta rates relative to the Canadian rates during 1972-82. For certain causes (e.g. IHD) this relationship is clear, while for others (e.g. pneumonia) a more subjective assessment is necessary. The columns headed "change" and "%" indicate whether the 1982 Alberta rate was increased or decreased relative to the 1972 rate, and what the actual percentage change was. It is clear that this way of assessing trend ignores what occurred during 1973-81. For those causes which displayed a uniform trend (e.g. all-causes) this shortcut sacrifices little, while for other causes with a more erratic pattern (e.g. suicide) a great deal of information is thereby lost.

The table demonstrates that for MVA and suicides the rates in Alberta were generally greater than the rates in Canada; a similar remark also applies to male cirrhosis, but only after 1979. Otherwise the Alberta rates were generally less than, or about the same as, the Canadian rates.

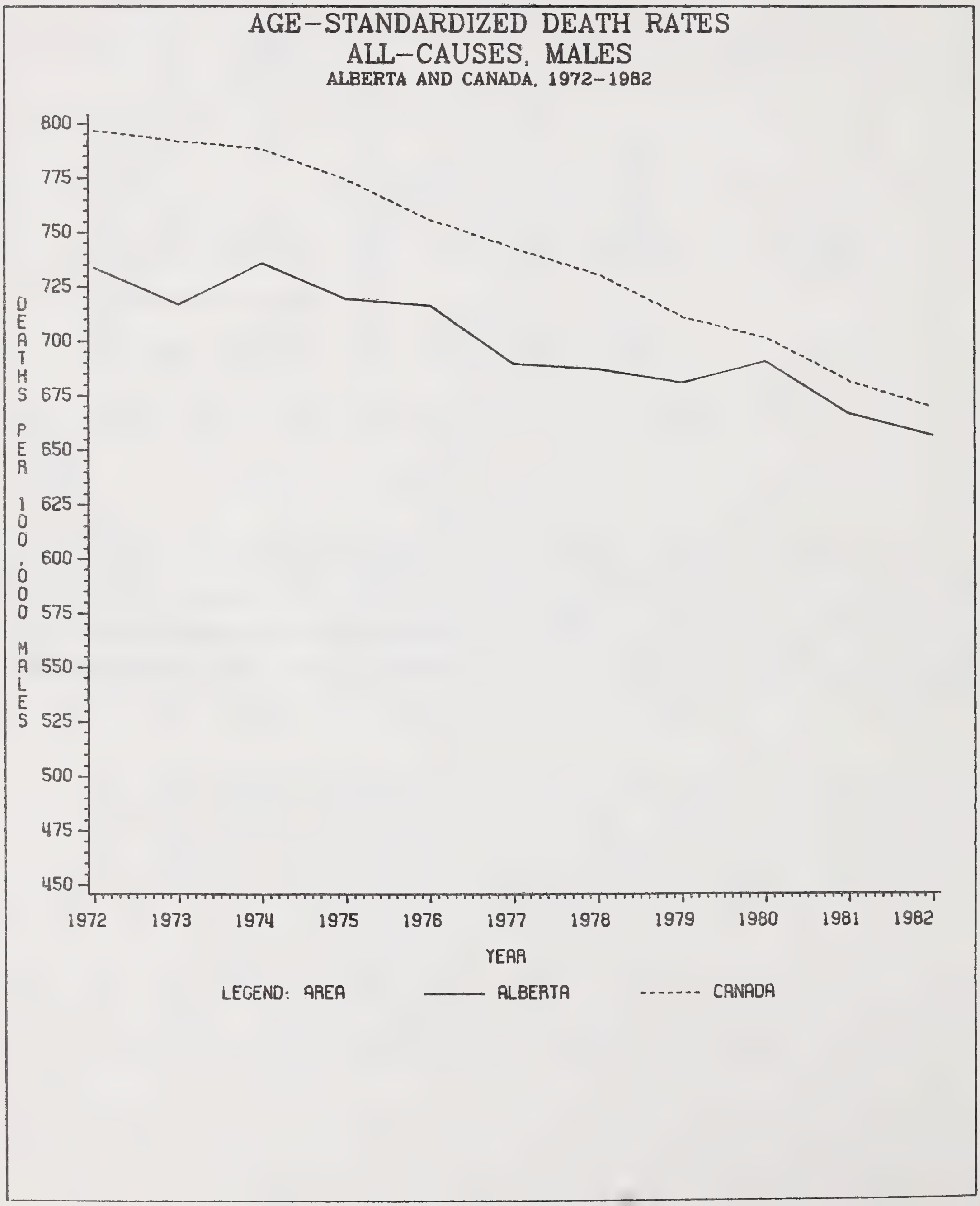
The most dramatic decreases in Alberta rates occurred for all-causes, IHD, CVD and MVA. On the other hand, the rates for lung cancer, suicide (for males) and cirrhosis (for males) showed a significant increase.

Summary of Figures 3.9 - 3.17

Figure	Cause	Male			Female		
		order	change	%	order	change	%
3.9	all-causes	less	decreased	11%	less	decreased	12%
3.10	lung cancer	less	increased	44%	less	increased	57%
3.11	breast cancer	-	-	-	less	increased	5%
3.12	IHD	less	decreased	19%	less	decreased	15%
3.13	CVD	less	decreased	30%	less	decreased	22%
3.14	pneumonia	same	increased	14%	same	increased	3%
3.15	cirrhosis	variable	increased	56%	variable	decreased	7%
3.16	MVA	greater	decreased	38%	greater	decreased	12%
3.17	suicide	greater	increased	13%	greater	decreased	3%

For technical reasons it has not been possible to draw the vertical axes in figures 3.9 - 3.17 according to the same scale. Furthermore, the vertical axes do not start at zero. Therefore great caution must be exercised when comparing graphs; the scale of the vertical axes must be taken into consideration.

Figure 3.9, males



]

Figure 3.9, females

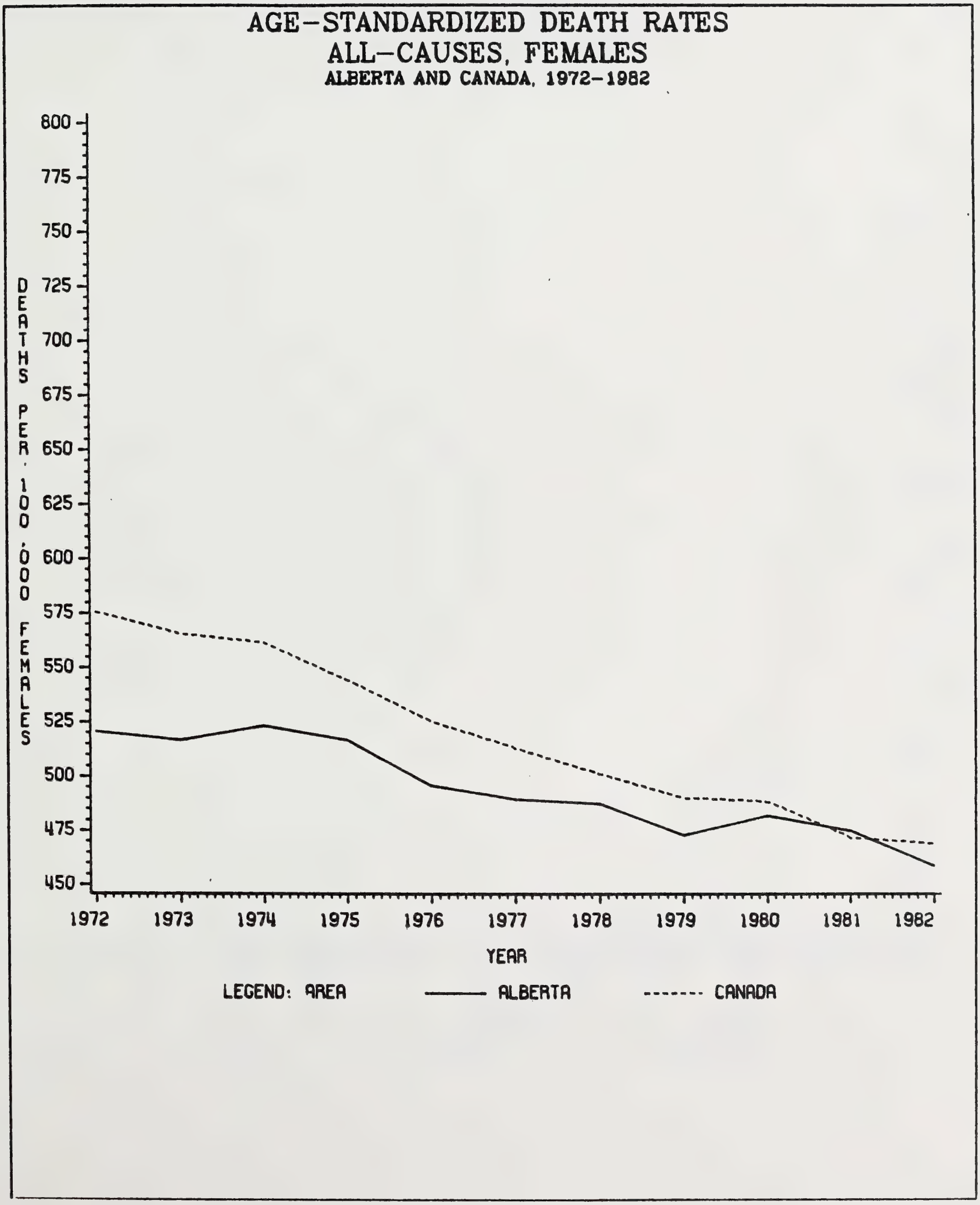


Figure 3.10, males

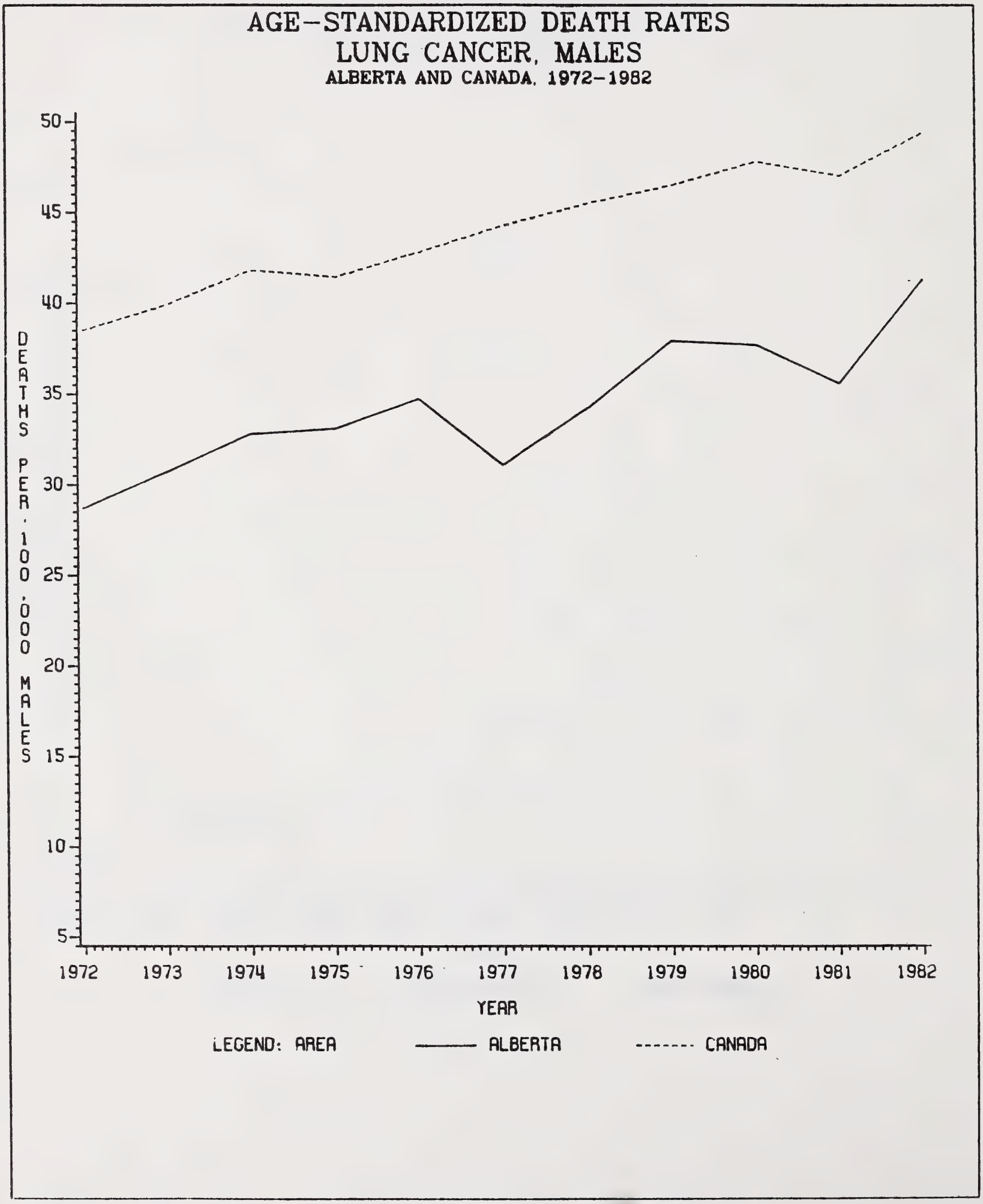


Figure 3.10, females

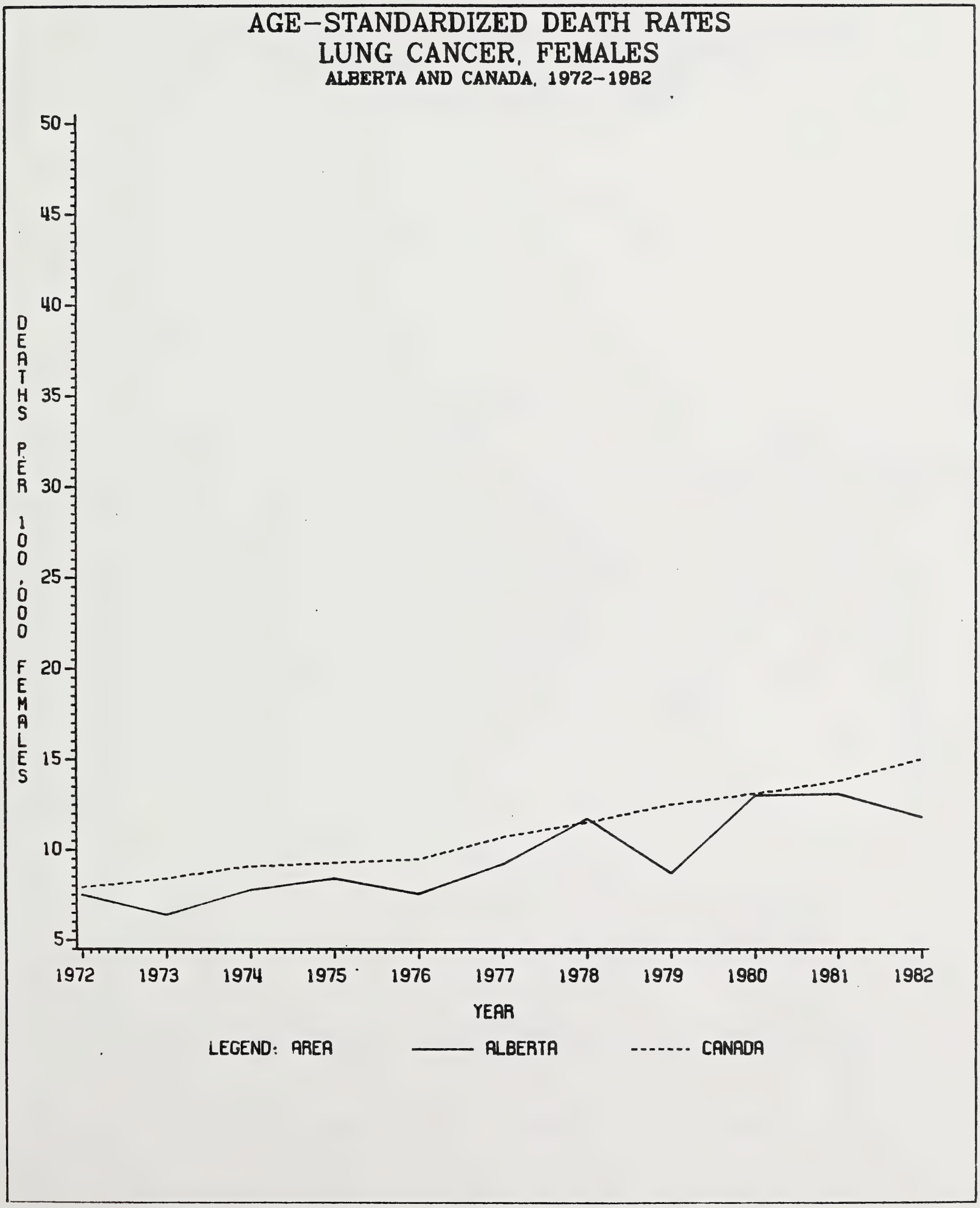


Figure 3.11

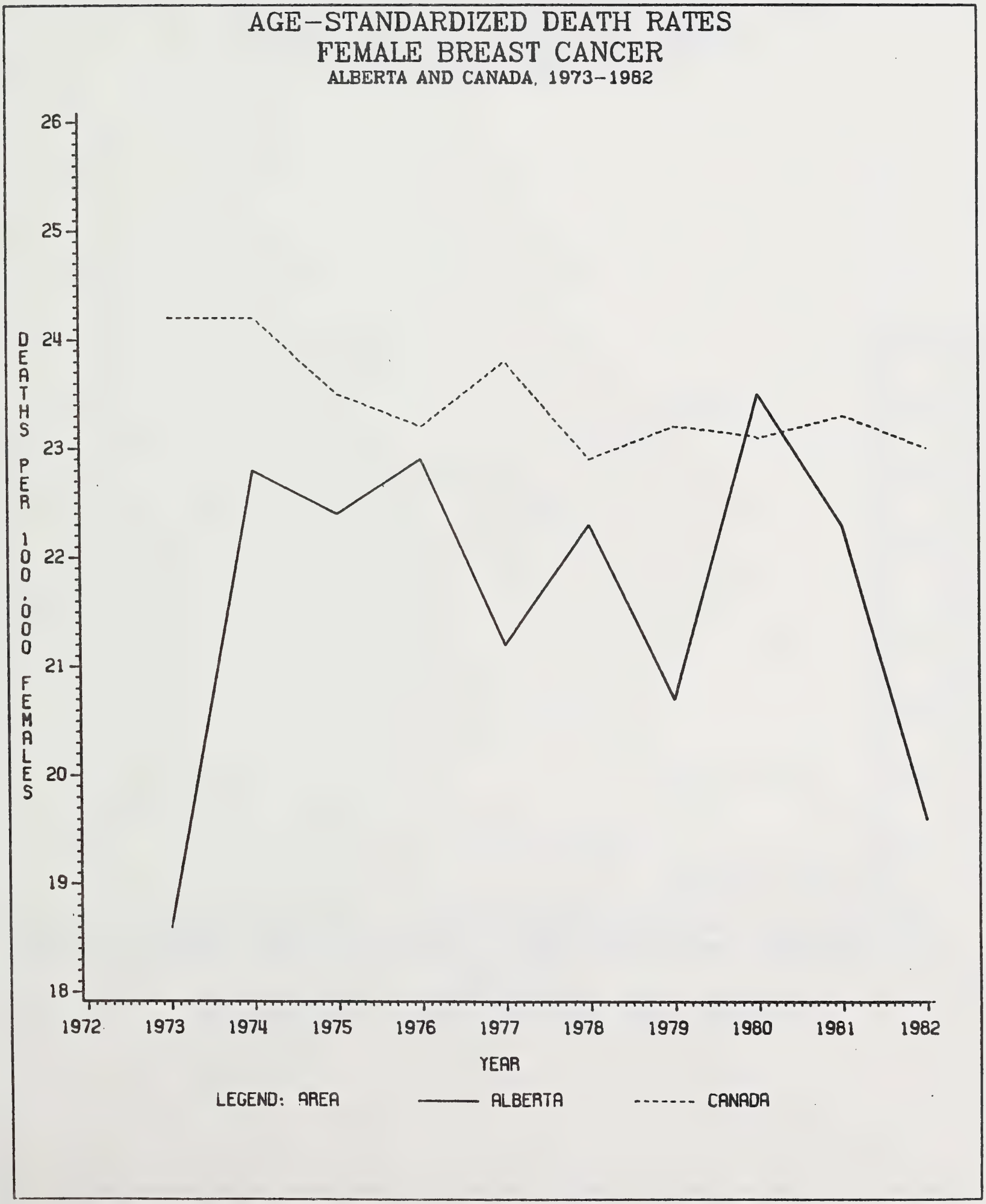

AGE-STANDARDIZED DEATH RATES
FEMALE BREAST CANCER
ALBERTA AND CANADA, 1973-1982
DEATHS PER 100,000 FEMALES
26
25
24
23
22
21
20
19
18
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
YEAR
LEGEND: AREA
ALBERTA
CANADA

Figure 3.12, males

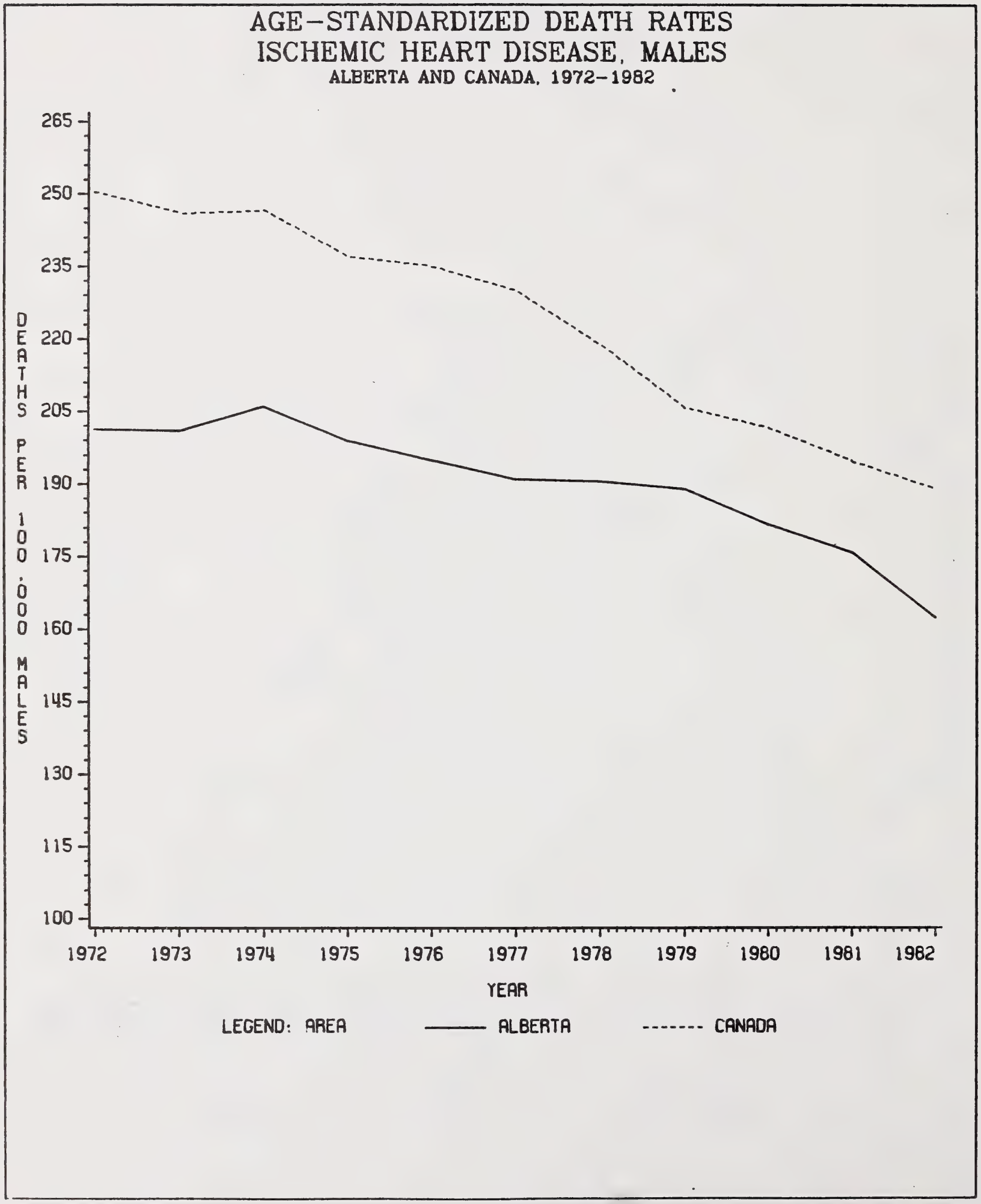


Figure 3.12, females

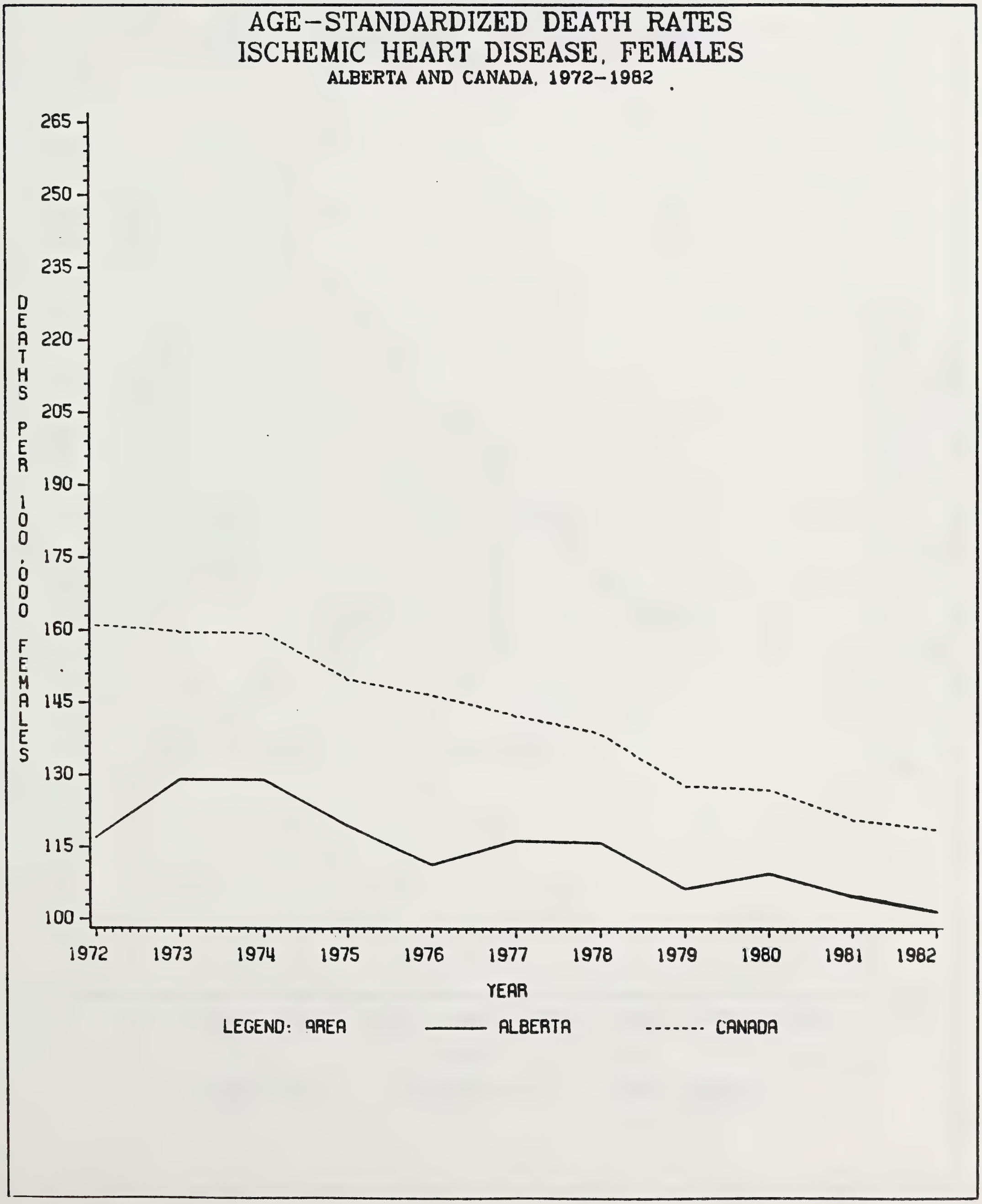


Figure 3.13, males

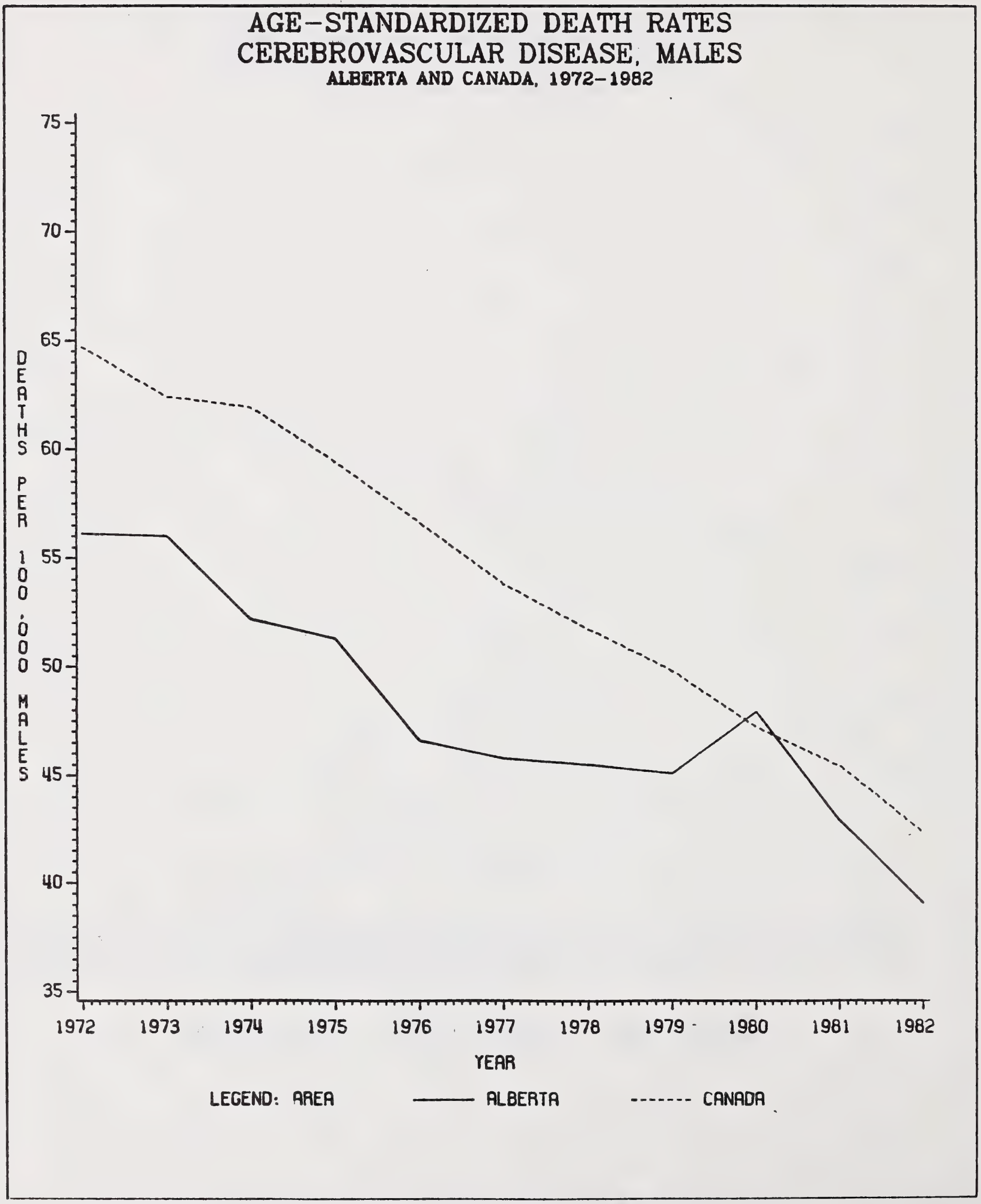


Figure 3.13, females

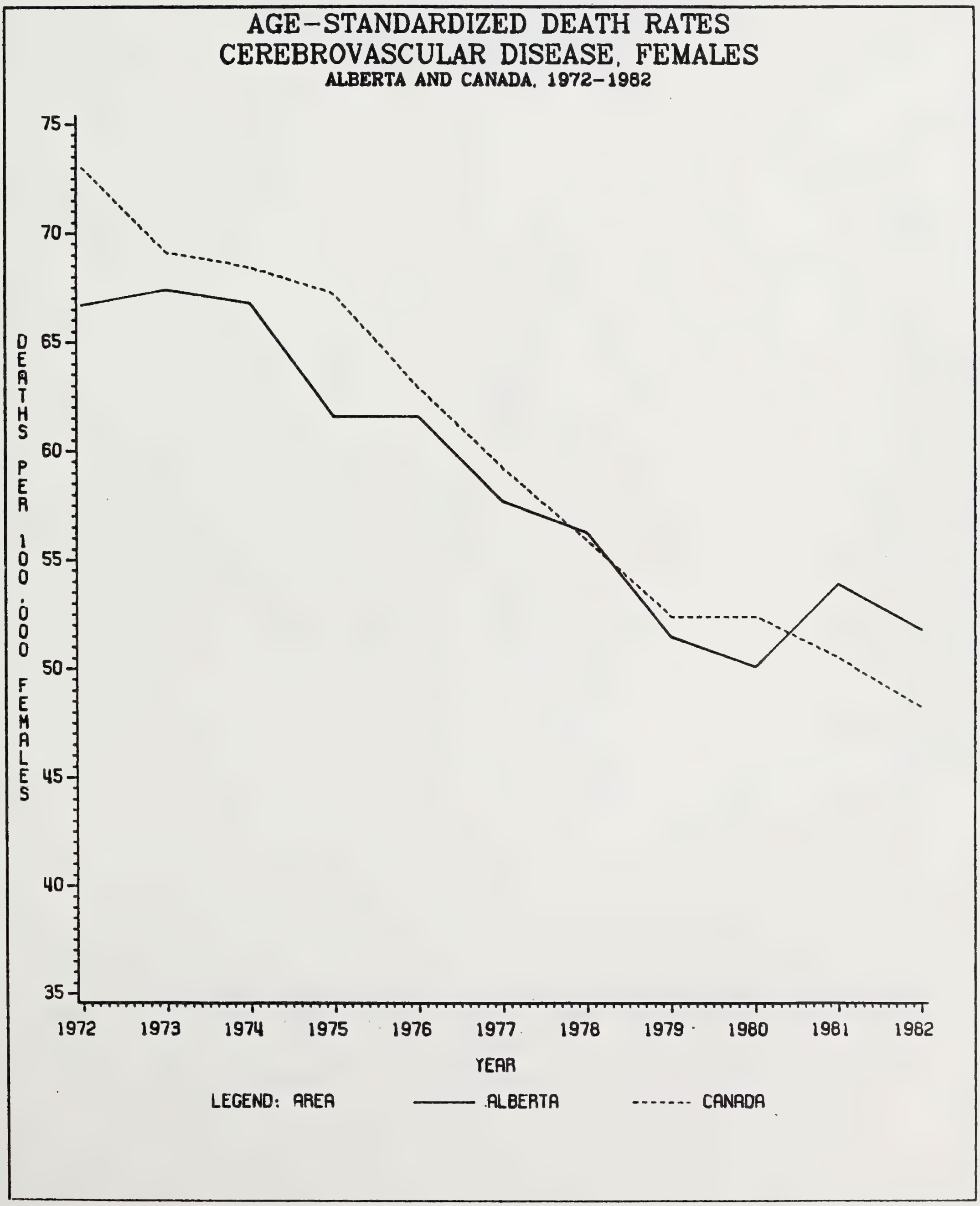


Figure 3.14, males

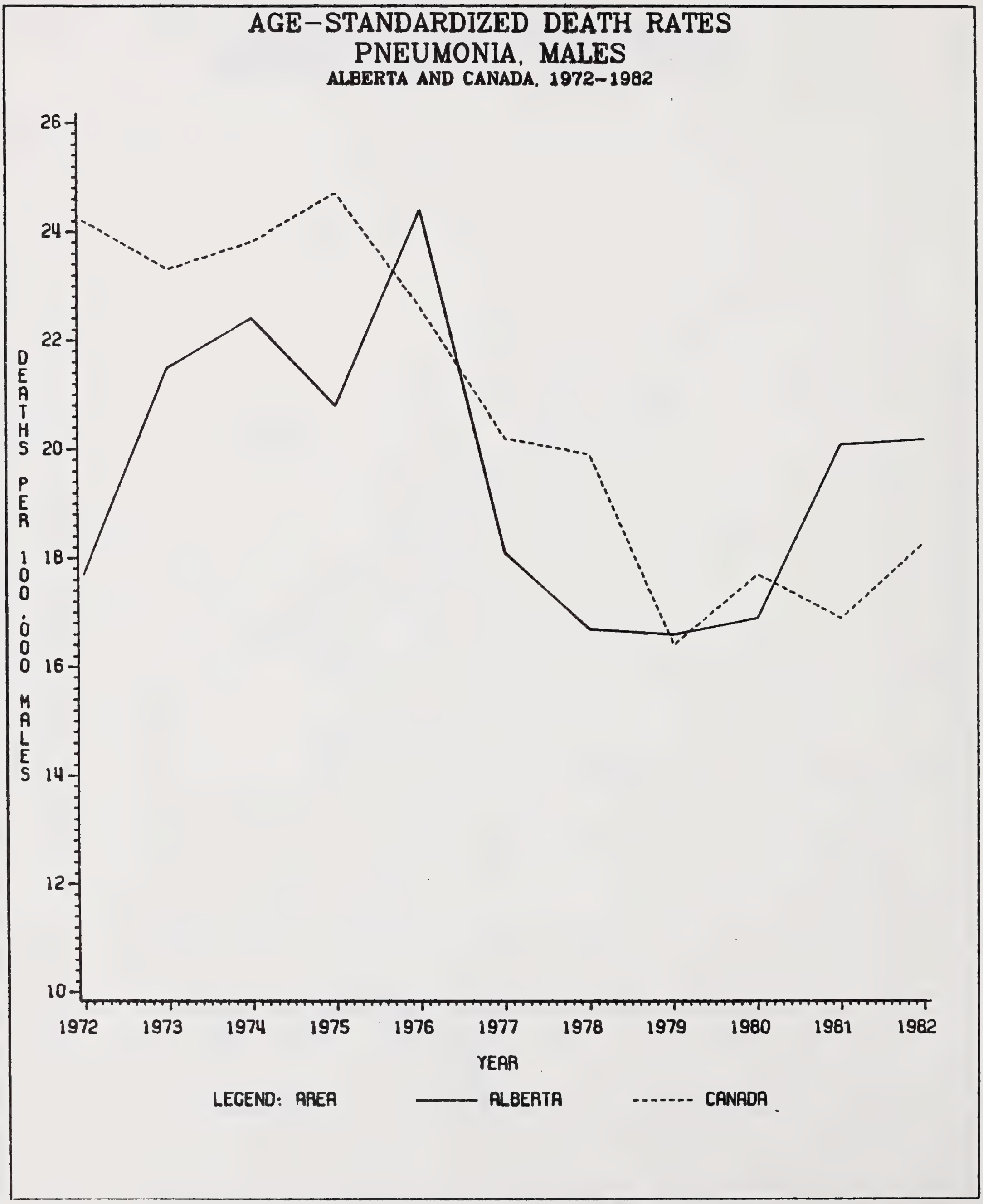


Figure 3.14, females

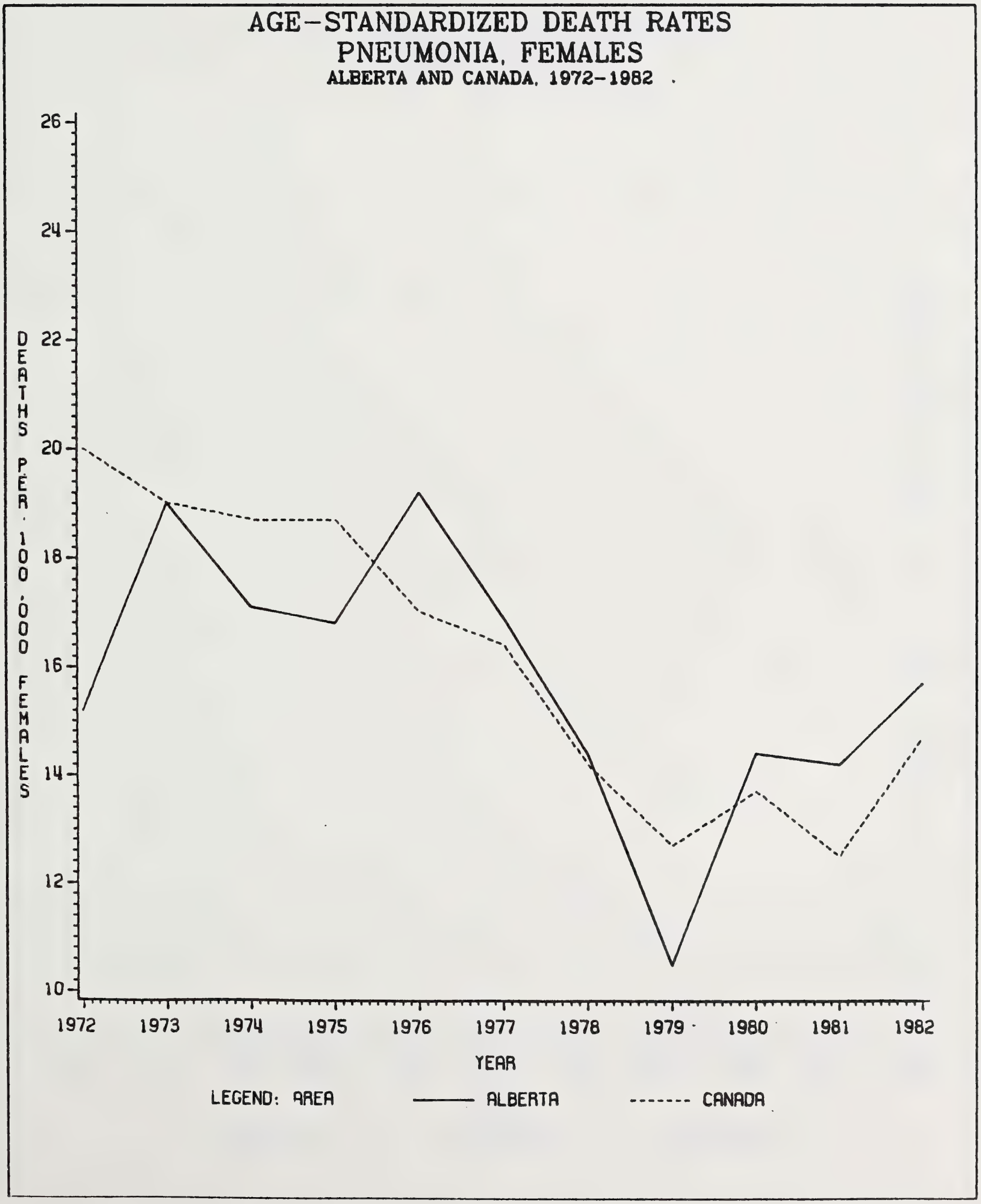


Figure 3.15, males

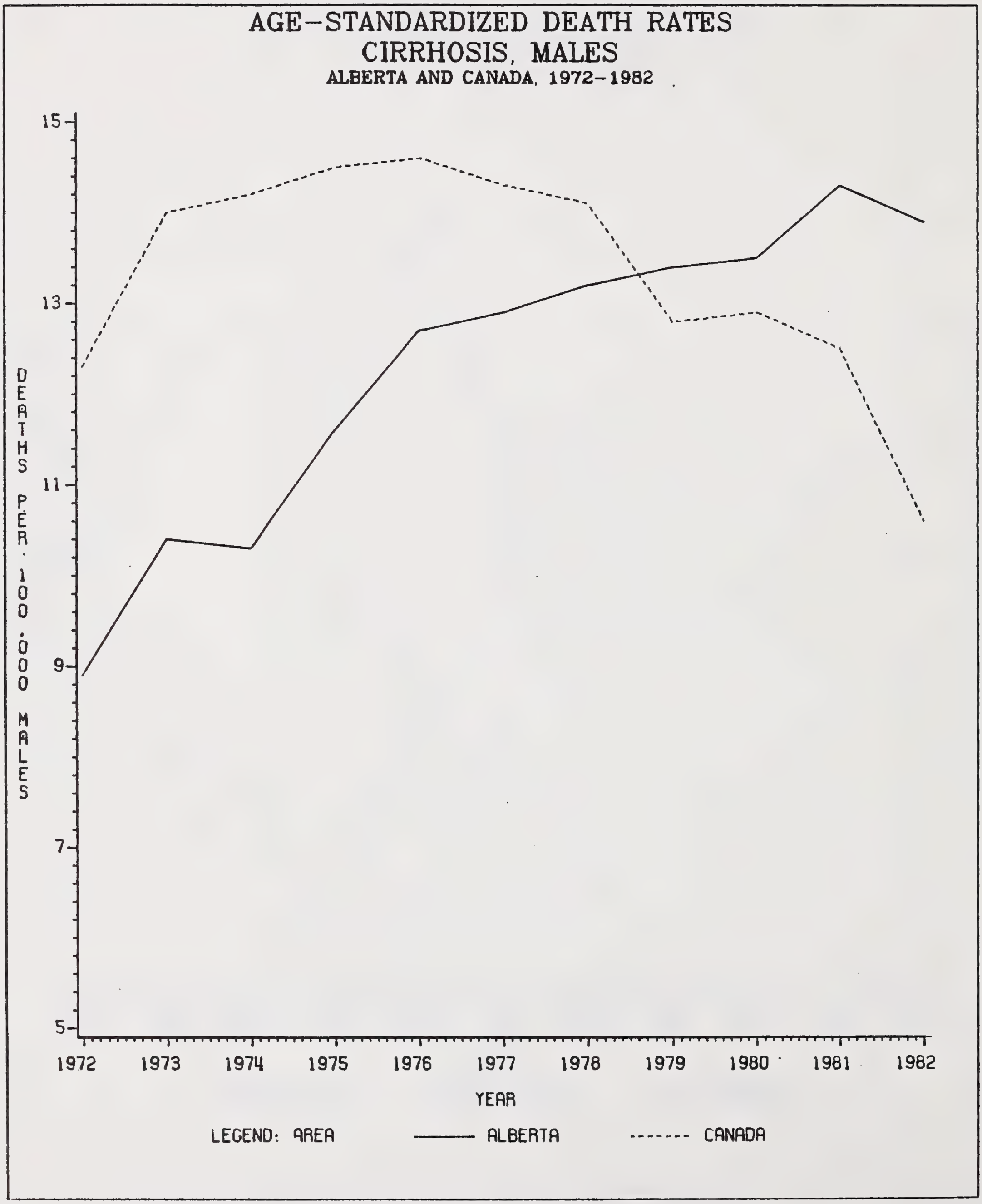


Figure 3.15, females

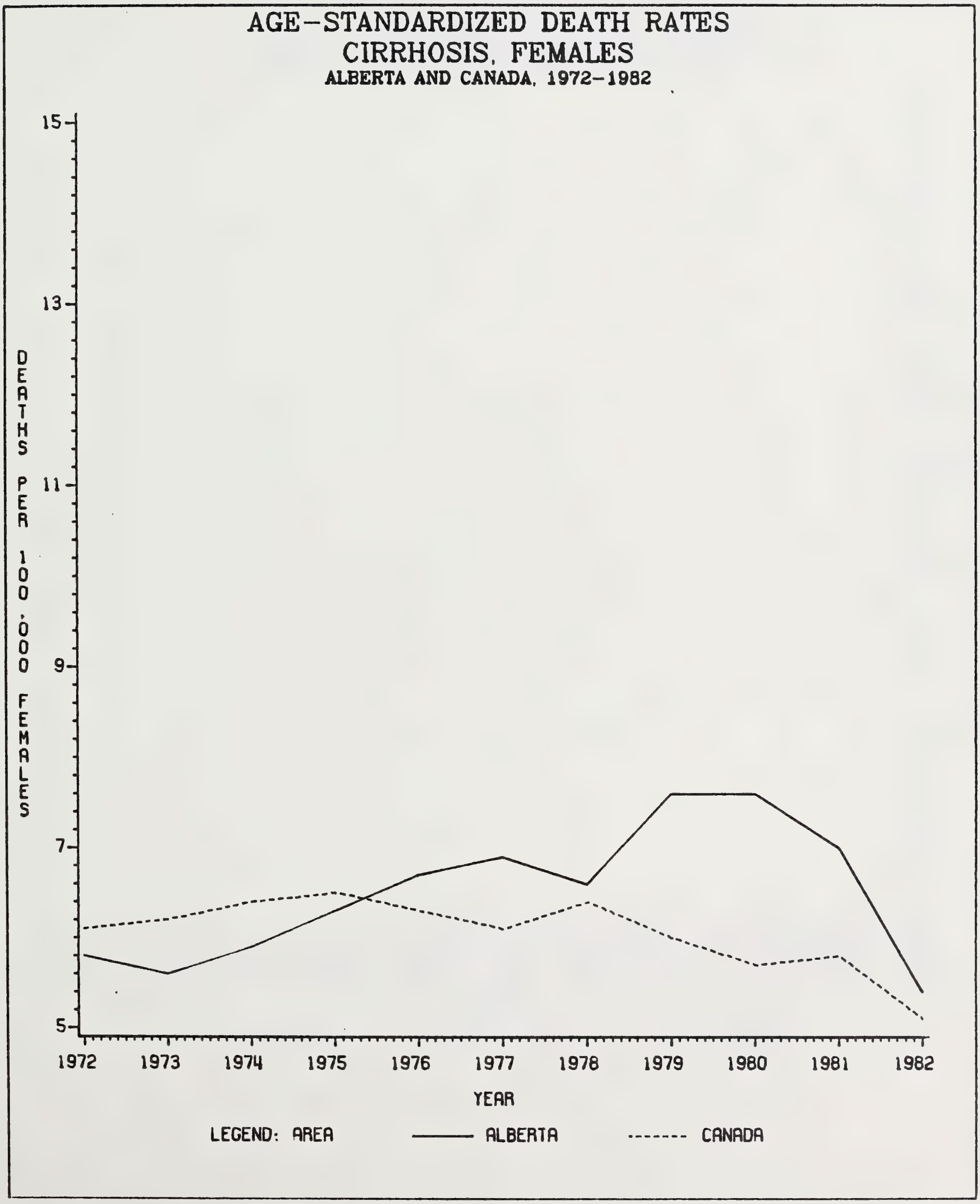


Figure 3.16, males

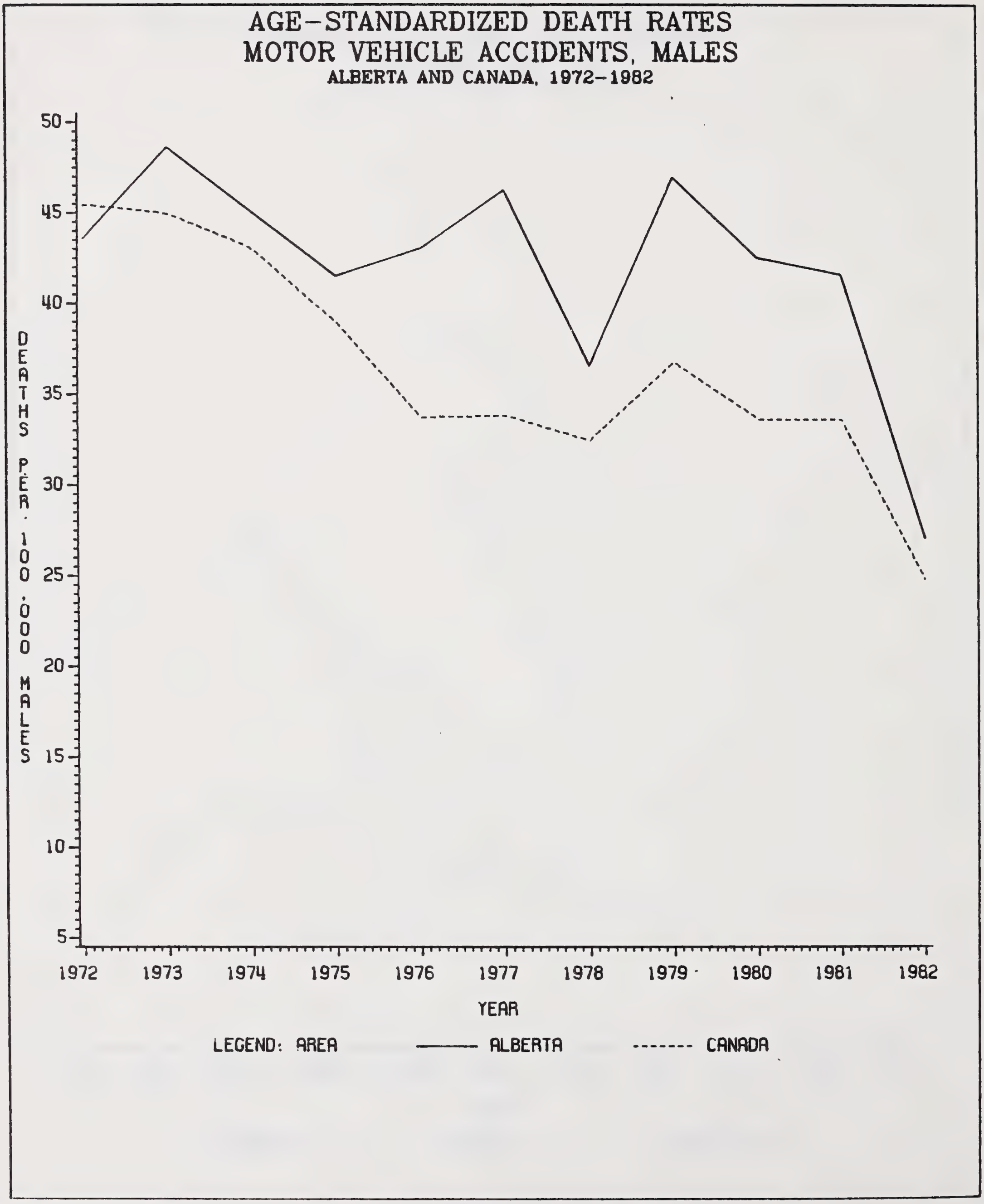


Figure 3.16, females

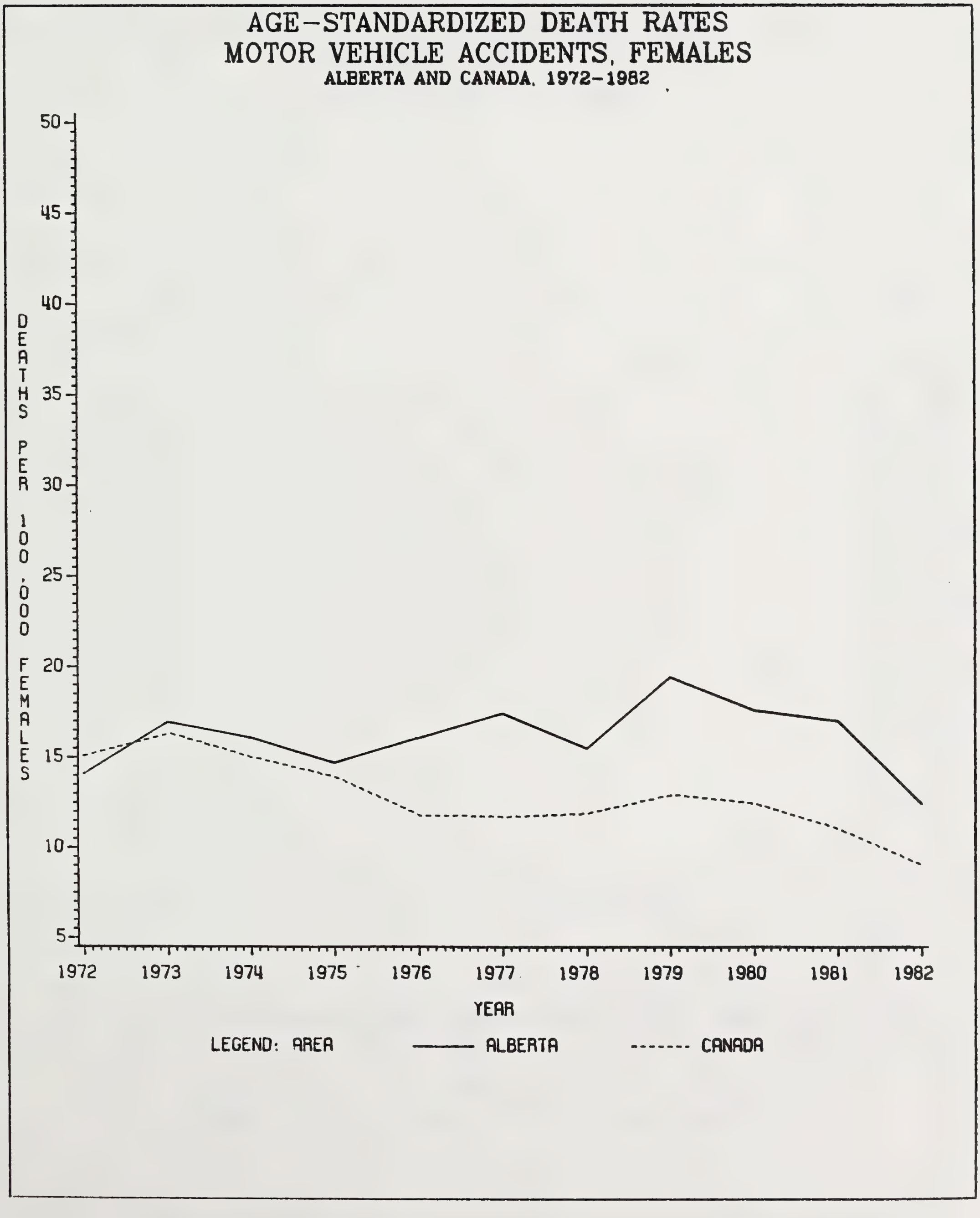


Figure 3.17, males

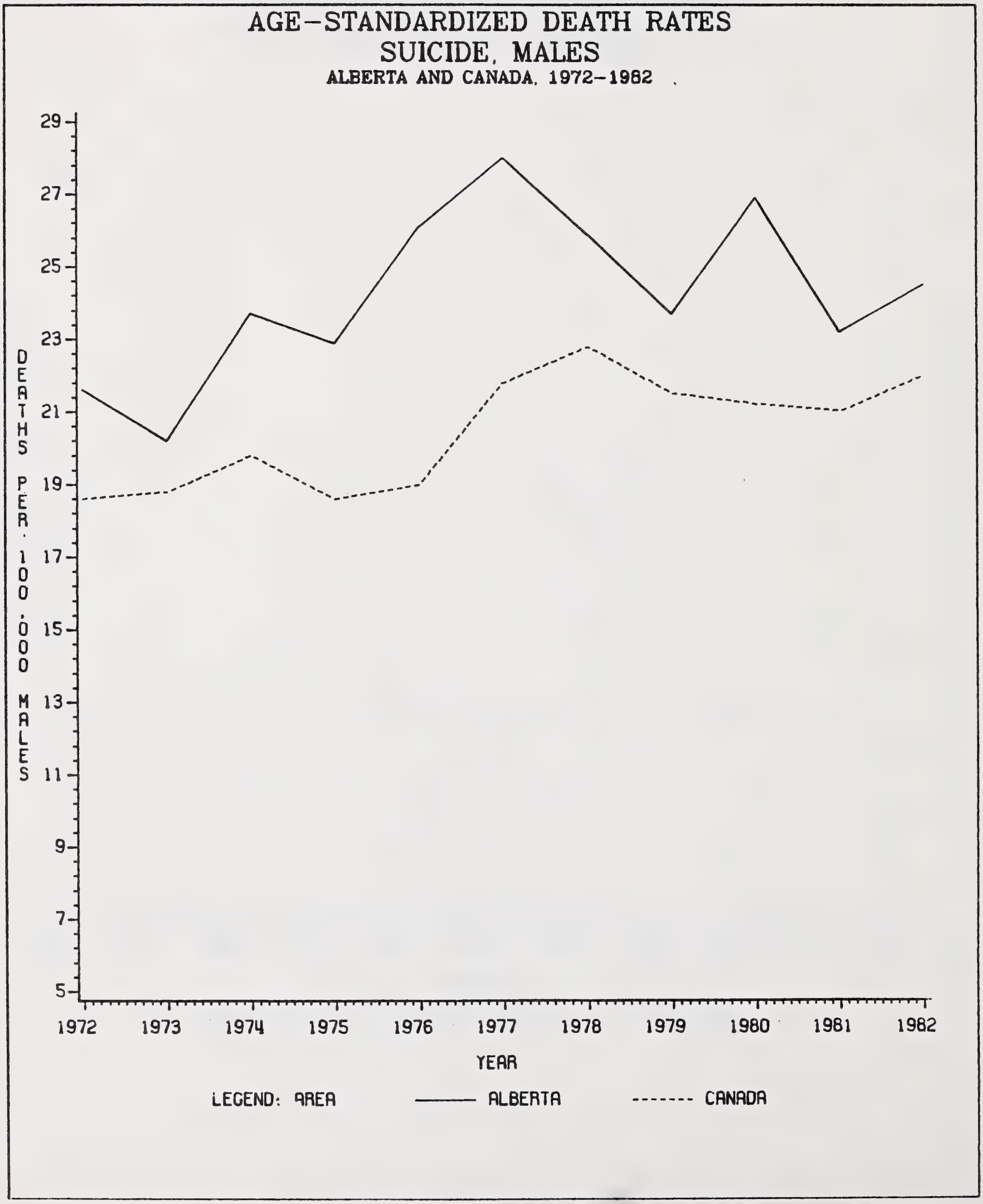
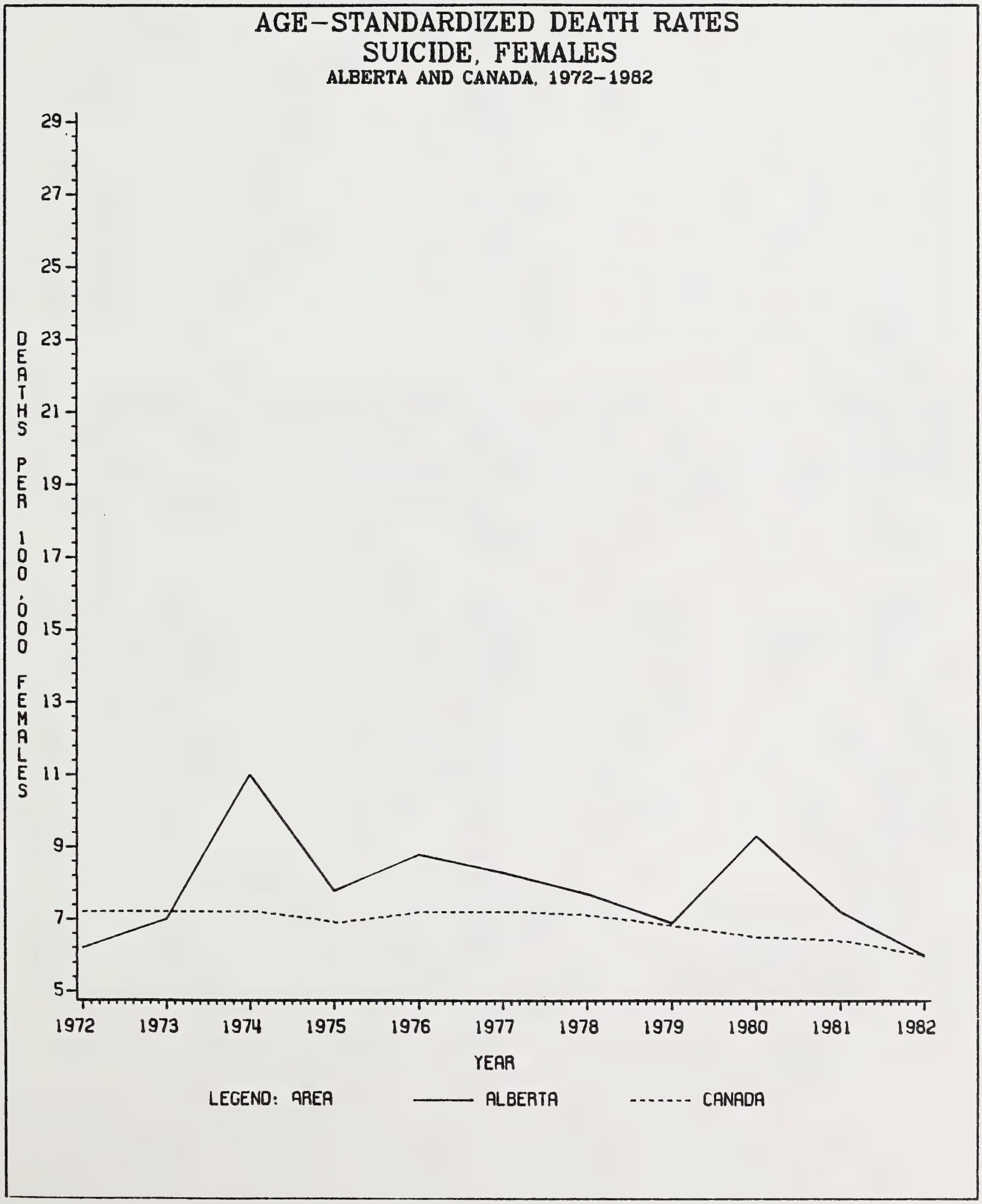


Figure 3.17 females



3.6 Age-Specific Death Rates for Selected Causes

One of the advantages of an age-standardized rate is that it combines many age-specific rates into a single number. This summarizing of information is particularly helpful at the preliminary stages of a data analysis. If the age-specific rates in one population are greater than the corresponding age-specific rates in a second population then the age-standardized rate in the first population will be greater than the age-standardized rate in the second. However, the converse to this statement is not generally true. This means that restricting attention to age-standardized rates at the expense of age-specific rates can, on occasion, be misleading, since the impression might be left that what applies to the population as a whole also applies to each age group. Consequently to complete the analysis performed in connection with table 3.7 it is necessary to look at the age-specific death rates of the selected causes in Alberta and Canada in 1982.

Tables 3.18 - 3.26 With one major exception the relationships among the age-specific death rates are consistent with those observed in table 3.7. That is, when an age-standardized rate in Alberta is greater or less than the rate in Canada then (for the most part) so are the component age-specific rates.

The exception to the above rule is a significant one -- namely for all-causes. In table 3.7 it was observed that the age-standardized death rate for all-causes in Alberta was less than the rate in Canada. An inspection of the age-specific rates for all-causes reveals that it is really only for the 45+ year olds that the Alberta rates are less than the Canadian rates. For younger ages the opposite is true, and this fact is obscured by age-standardization.

The age-specific rates for the other selected causes (tables 3.19 - 3.26) are found in appendix C.

Table 3.18 Age-Specific Death Rates, All-Causes, 1982

Age Group	Age-Specific Death Rates* Alberta	Age-Specific Death Rates* Canada
Male		
under 1	1,179.3	1050.0
1-4	60.7	53.3
5-14	36.5	33.5
15-24	148.8	129.8
25-34	138.7	132.3
35-44	228.8	203.2
45-54	592.4	589.6
55-64	1,403.3	1,549.4
65-74	3,560.2	3,769.8
75+	10,214.3	10,348.6
Female		
under 1	955.2	788.6
1-4	40.3	41.8
5-14	22.3	21.7
15-24	47.5	40.9
25-34	69.5	56.7
35-44	133.1	123.8
45-54	297.3	319.8
55-64	724.1	772.8
65-74	1,740.5	1,918.5
75+	7,152.0	7,291.9

* deaths per 100,000 males or females

4. HOSPITAL MORBIDITY

4. HOSPITAL MORBIDITY

In this report the term hospital will refer only to those institutions classified by Statistics Canada as a general or allied special hospital. Broadly speaking, the definition encompasses acute care, chronic care, and convalescent facilities. Specifically excluded are, for example, mental institutions, tuberculosis sanitoria, and hospitals of the government of Canada.

Each time a patient leaves hospital, as a result of discharge (alive), death, or transfer to another hospital, a separation is said to have taken place. The dates of admission and separation mark the beginning and end of the hospital stay. The time elapsed between these two endpoints is termed the length of stay, and is usually given as a number of patient-days.

Hospital morbidity statistics for a given year refer to hospitalizations having a date of separation in that year, regardless of the timing of the date of admission. This poses certain difficulties when interpreting these statistics. For example, if a patient separates after a very lengthy hospital stay, all of the time spent in hospital will be counted toward the year in which separation takes place, thus inflating that year's figures. On the other hand, hospital stays beginning, but not ending, in a given year will only be counted in the statistics for a succeeding year. However it is likely that for a given year the tendencies to over- and undercount largely compensate for each other.

Another difficulty with hospital morbidity statistics arises because information is recorded according to hospital stay rather than according to patient. Consequently if an individual separates from hospital several times in a year then that many separations will be counted in the statistics. This needs to be kept in mind when hospital morbidity statistics are being interpreted since there might otherwise be an inclination to think that separations refer to individuals rather than episodes of hospitalization.

It also needs to be remembered that hospital morbidity is not necessarily synonymous with physical illness. There is sometimes a degree of discretion available to the physician and patient regarding whether or not a hospitalization should take place, especially when there is a "social" component to the patient's problem. This sort of phenomenon distinguishes hospital morbidity statistics from natality and mortality statistics.

Up to 1978 the federal government published hospital morbidity statistics on a calendar year basis and according to province of residence. Since then the publications have been on a fiscal year basis and according to province of hospitalization. Although the statistics gathered on non-residents treated in Alberta are not exactly offset by those gathered on Alberta residents treated outside of the province, the net difference is not of practical significance. So it is legitimate to compare statistics published after 1978 to those from before.

For the purposes of this report hospital morbidity statistics can be said to be complete. As was the case with mortality statistics, there is no way of knowing the accuracy of these statistics from the point of view of cause of hospitalization. But by using broad categories of causes, errors due to misclassification may hopefully be minimized.

4.1 Methodology for Ranking Causes of Hospitalization

Chapter 3 included a detailed discussion of the ICD-9 and its use as a system of nomenclature for causes of death. In fact this same reference can also be used to label causes of hospitalization, except that in this case an additional chapter called "Classification of Factors Influencing Health Status and Contact with Health Services" is appended to the earlier scheme.

Corresponding to the approach of chapter 3 of this report, the chapters of this extended version of ICD-9 will be used to define (eighteen) broad causes of hospitalization. It will be seen that this produces a very different picture from that observed in Chapter 3. Indeed the results suggest that the interpretation of hospital morbidity statistics is a somewhat more complex problem than that posed by mortality statistics. For this reason selected causes of hospitalization have not been explored in this report. This investigation may form the basis for a future report.

The criteria used to rank the causes of hospitalization are: (1) age-standardized separation rate, and (2) age-standardized patient-days rate. As was the case for those indices employed in Chapter 3, these indices have an additive property which permits a discussion of the percent contribution of the index for an individual cause to the index for all-causes.

4.2 ICD-9 Chapter Causes of Hospitalization

All of the tables in this section refer to hospitalizations in Alberta and Canada in fiscal 1980/81.

Table 4.1 This table shows the six most important causes of hospitalization ranked according to an age-standardized separation rate criterion. A separation rate (for a given cause) is defined by

$$\frac{\text{separations}}{\text{population size}} \times 100 .$$

It is a measure of the risk of being hospitalized (for that cause).

Since tables 3.4 and 4.1 are concerned with mortality and hospitalizations due to essentially the same family of causes, it is appropriate that these tables be compared.

* tables 3.4 and 4.1 are similar in that circulatory disease, external causes, respiratory disease and digestive disease appear in both; neoplasms is conspicuously absent from table 4.1.

* the percentage contributions are significantly different in tables 3.4 and 4.1; in particular circulatory disease is far less important as a cause of hospitalization than as a cause of death in Alberta and Canada.

* obstetric causes (most often a normal childbirth) are by far the most important causes of hospitalization for females in Alberta and Canada, accounting for 28% of the rate for all-causes; there is no such outstanding cause for males.

* the rate for all-causes in Alberta is considerably greater than the rate in Canada.

Table 4.1 ICD-9 Chapter Causes of Hospitalization, Ranked by Age-Standardized Separation Rates, 1980/81

	Age-Standardized Separation Rates*				
	Alberta			Canada	
Cause	Rate	%	Cause	Rate	%
		Male			
external	2.31	17.0	digestive	1.73	14.8
respiratory	2.06	15.2	respiratory	1.70	14.6
digestive	1.96	14.5	external	1.59	13.6
circulatory	1.51	11.1	circulatory	1.51	12.9
musculo-skeletal	0.84	6.2	urological	0.72	6.1
urological	0.78	5.8	musculo-skeletal	0.70	6.0
other	4.08	30.2	other	3.73	32.0
all-causes	13.54	100	all-causes	11.68	100
		Female			
obstetric	5.59	28.1	obstetric	4.70	28.3
urological	1.97	9.9	urological	1.62	9.7
digestive	1.93	9.7	digestive	1.58	9.5
respiratory	1.79	8.9	respiratory	1.39	8.3
external	1.45	7.3	circulatory	1.14	6.9
circulatory	1.24	6.2	external	0.99	6.0
other	5.92	29.9	other	5.19	31.3
all-causes	19.89	100	all-causes	16.61	100

* separations per 100 males or females

Table 4.2 This table shows the six most important causes of hospitalization ranked according to an age-standardized patient-days rate criterion. The patient-days rate (for a given cause) is defined by

$$\frac{\text{patient-days}}{\text{population size}} \times 100$$

It is a measure of the risk of spending time in hospital (due to that cause).

- * the causes that appear in table 4.2 are somewhat similar to those in table 4.1, but the correspondence is not close.
- * circulatory disease is by far the most important cause of time spent in hospital in Alberta and Canada, accounting for approximately 20% of the rate for all-causes.
- * the rate for all-causes in Alberta is considerably greater than the rate in Canada.

Table 4.2 ICD-9 Chapter Causes of Hospitalization, Ranked by Age-Standardized Patient-Days Rates, 1980/81

	Age-Standardized Patient-Days Rates*				
	Alberta			Canada	
Cause	Rate	%	Cause	Rate	%
		Male			
circulatory	38.5	23.7	circulatory	30.2	22.2
external	19.3	11.9	external	13.8	10.1
respiratory	15.0	9.2	mental	13.0	9.5
neurological	14.3	8.8	digestive	12.9	9.5
digestive	14.3	8.8	respiratory	12.6	9.3
neoplasms	12.7	7.8	neoplasms	11.8	8.7
other	48.7	29.8	other	41.9	30.7
all-causes	162.8	100	all-causes	136.2	100
		Female			
circulatory	44.2	21.9	circulatory	32.1	18.7
obstetric	25.1	12.4	obstetric	22.7	13.3
external	16.1	8.0	mental	16.3	9.5
neurological	15.2	7.5	digestive	13.2	7.7
digestive	15.2	7.5	neoplasms	12.2	7.2
mental	13.4	6.6	external	11.4	6.7
other	72.5	36.1	other	63.5	36.9
all-causes	201.7	100	all-causes	171.4	100

* patient-days per 100 males or females

4.3 Trends in Hospital Morbidity Rates for All-Causes

In this section trends in age-standardized separation and patient-days rates in Alberta and Canada over the period 1971-78, 1979/81 (1971 - 80/81 for short) will be explored. Once again, the discussion is restricted to all-causes of hospitalization.

As was pointed out in connection with figures 3.9 - 3.17, it is important to consider the scale of the vertical axis in figures 4.3 - 4.5.

Figure 4.3 This figure shows the age-standardized separation rates for all-causes in Alberta and Canada during 1971-80/81.

* the rate in Alberta was consistently, and significantly, greater than the rate in Canada throughout 1971-80/81.

* the rate in Alberta decreased by 24% for males and by 30% for females between 1971 and 1980/81.

Figure 4.4 This figure shows the age-standardized patient-days rates for all-causes in Alberta and Canada during 1971-80/81.

* the rate in Alberta was consistently, and significantly, greater than the rate in Canada throughout 1971-80/81.

* the rate in Alberta decreased by 16% for males and by 24% for females between 1971 and 1980/81.

The sudden drop in the Canada rate for 1978 is due to underreporting by Ontario in that year.

Figure 4.5 This figure shows the age-standardized average length of stay in hospital for all-causes in Alberta and Canada during 1971-80/81. The average length of stay (for a given cause) is defined by

$$\frac{\text{patient-days}}{\text{separations}} .$$

* the relatively large separation and patient-days rates in Alberta combined to produce an average length of stay which was approximately equal to the average length of stay in Canada throughout 1971-80/81.

* the average length of stay in Alberta increased by 10% for males and by 7% for females between 1971 and 1980/81.

The similarity of the average lengths of stay in Alberta and Canada means that the greater number of days spent in hospital per person in Alberta (Figure 4.4) is solely a consequence of the increased frequency of going to hospital (figure 4.3), not the duration of the hospital visit.

Figure 4.3, males

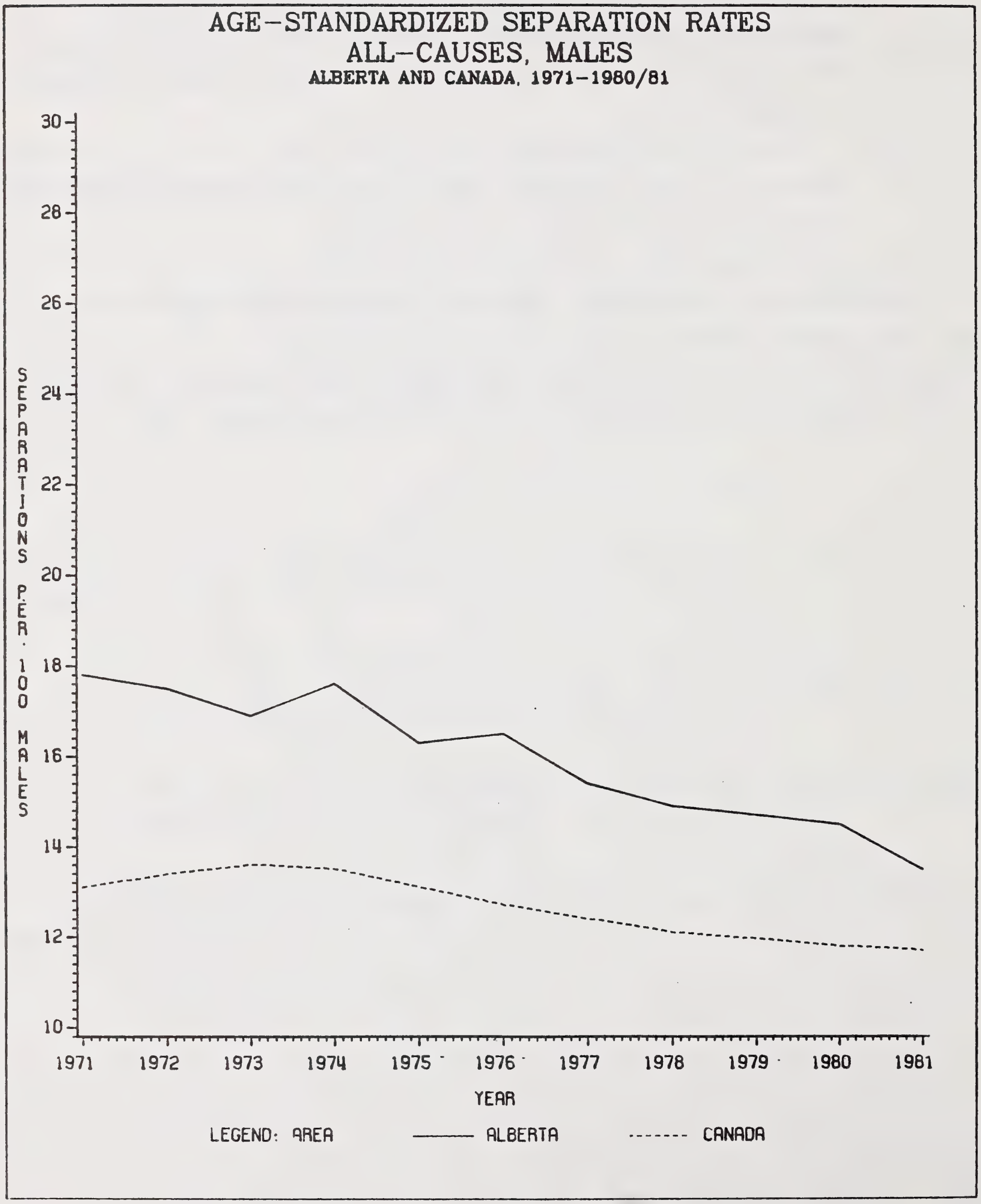


Figure 4.3, females

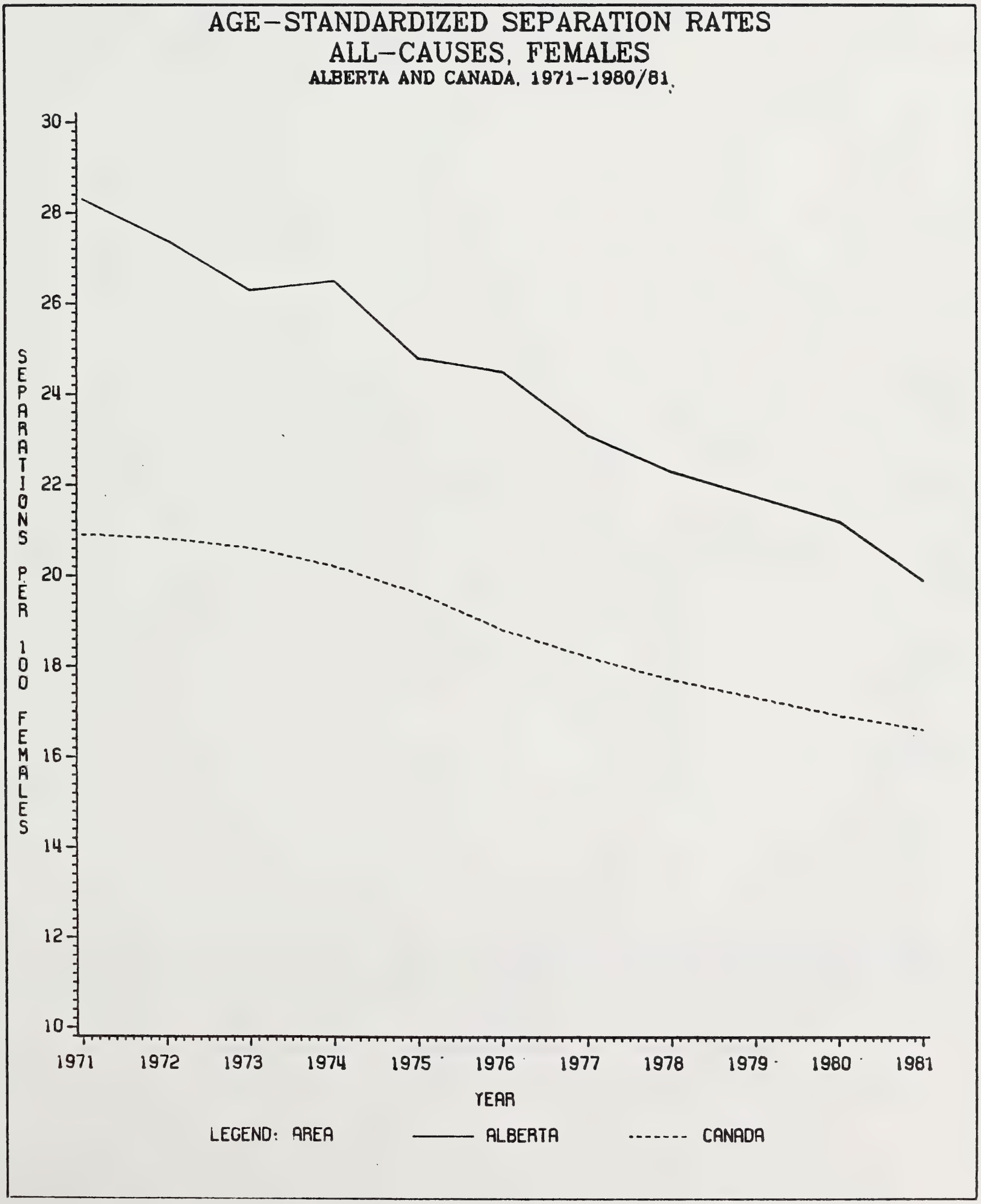


Figure 4.4, males

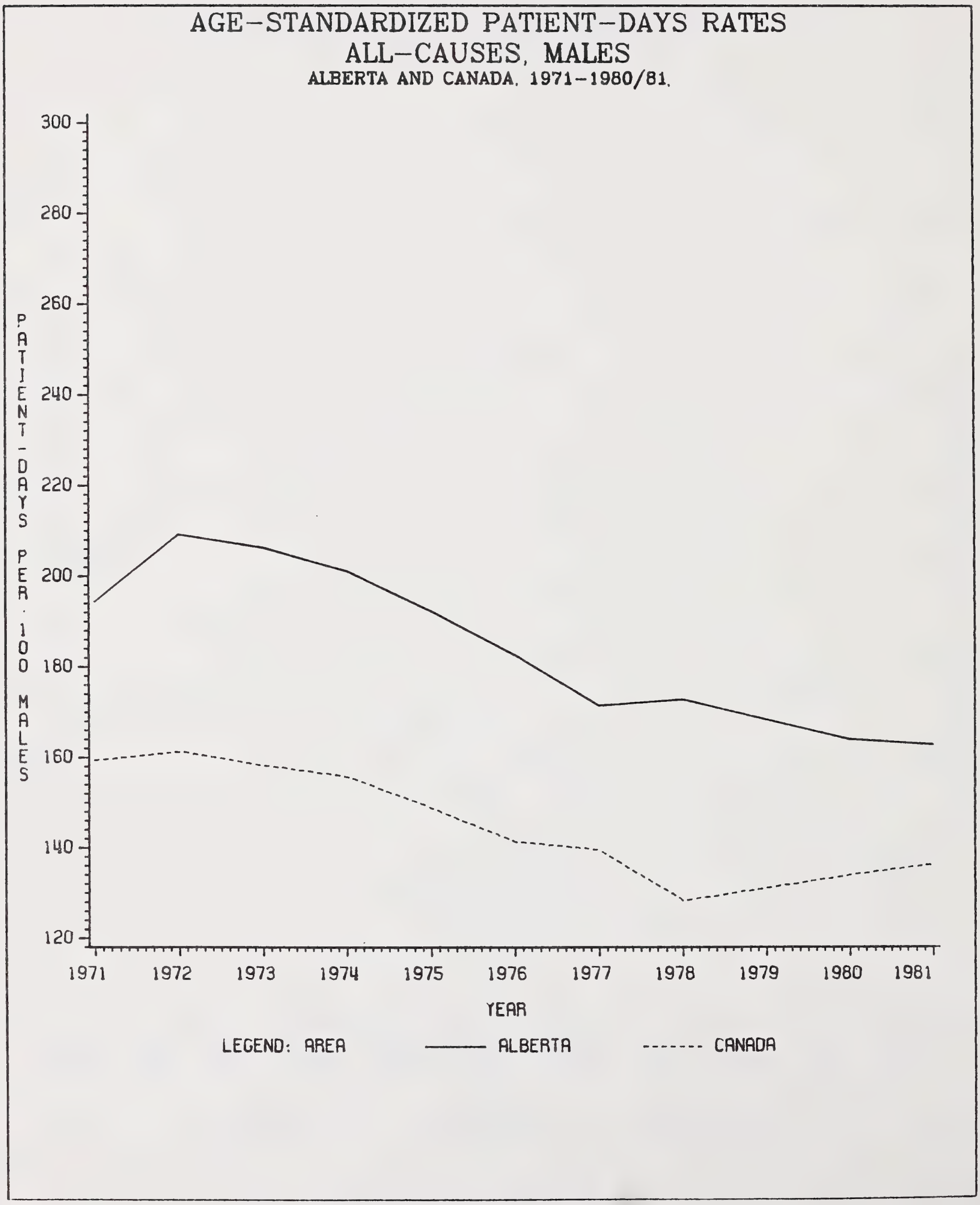


Figure 4.4, females

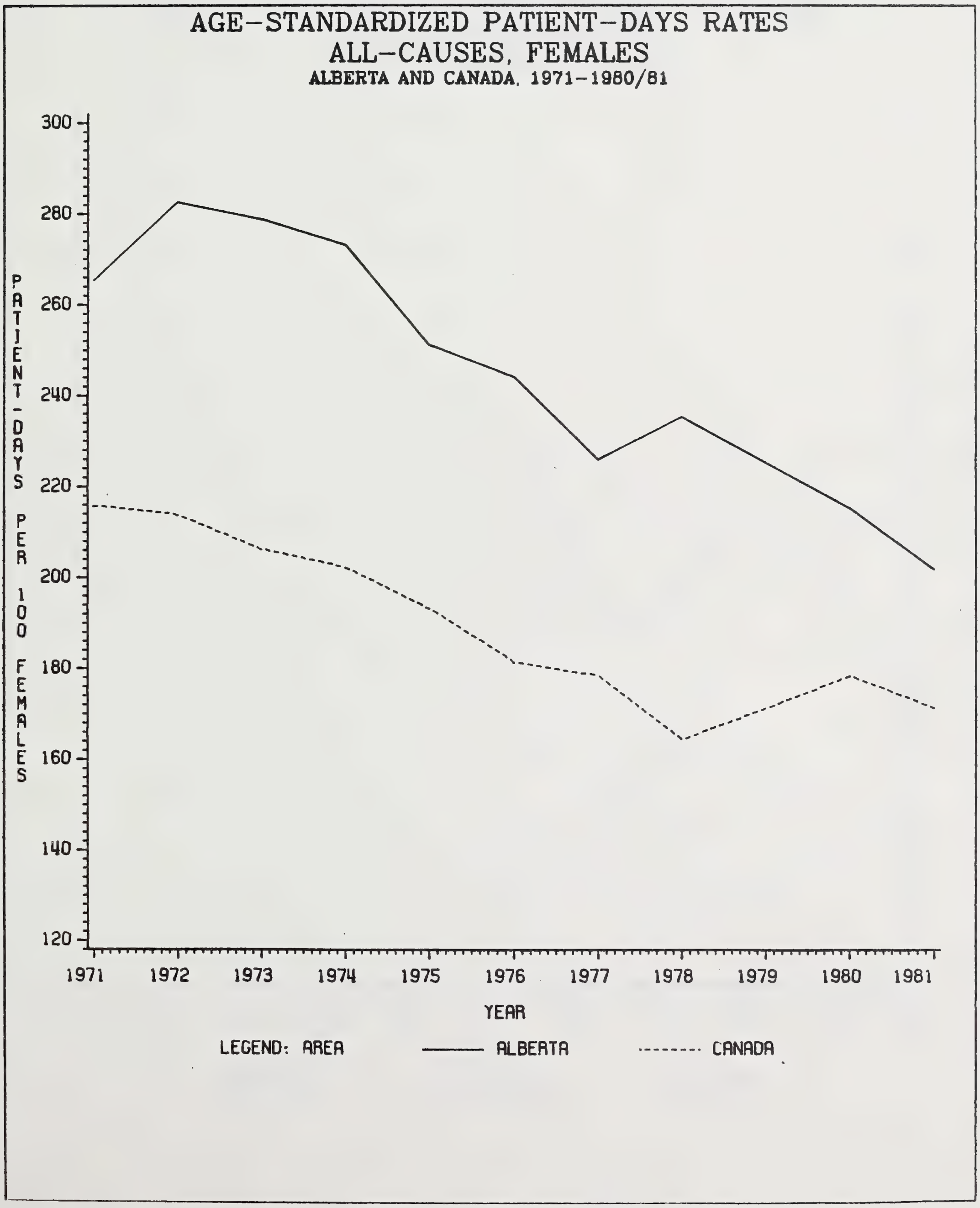


Figure 4.5, males

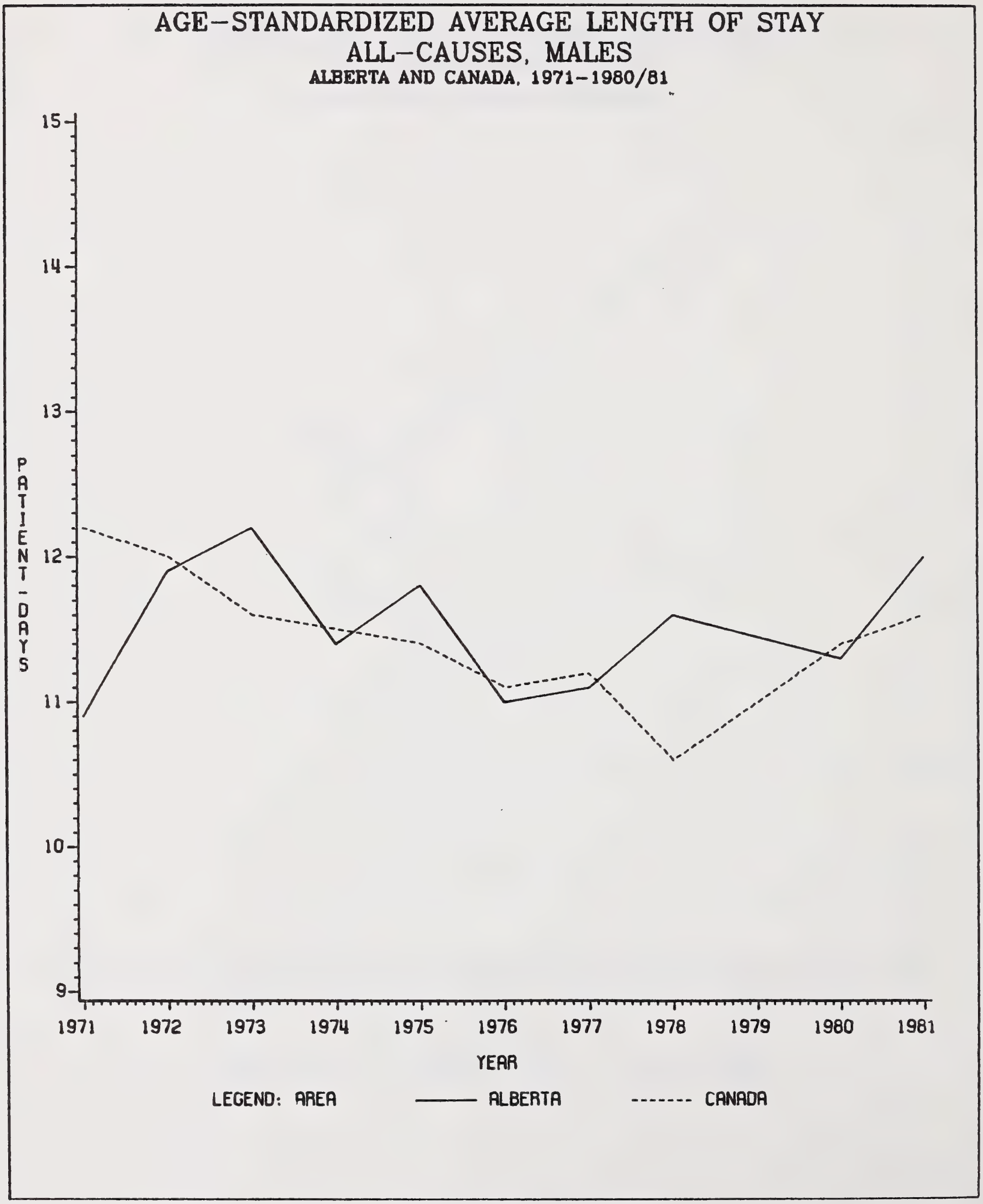
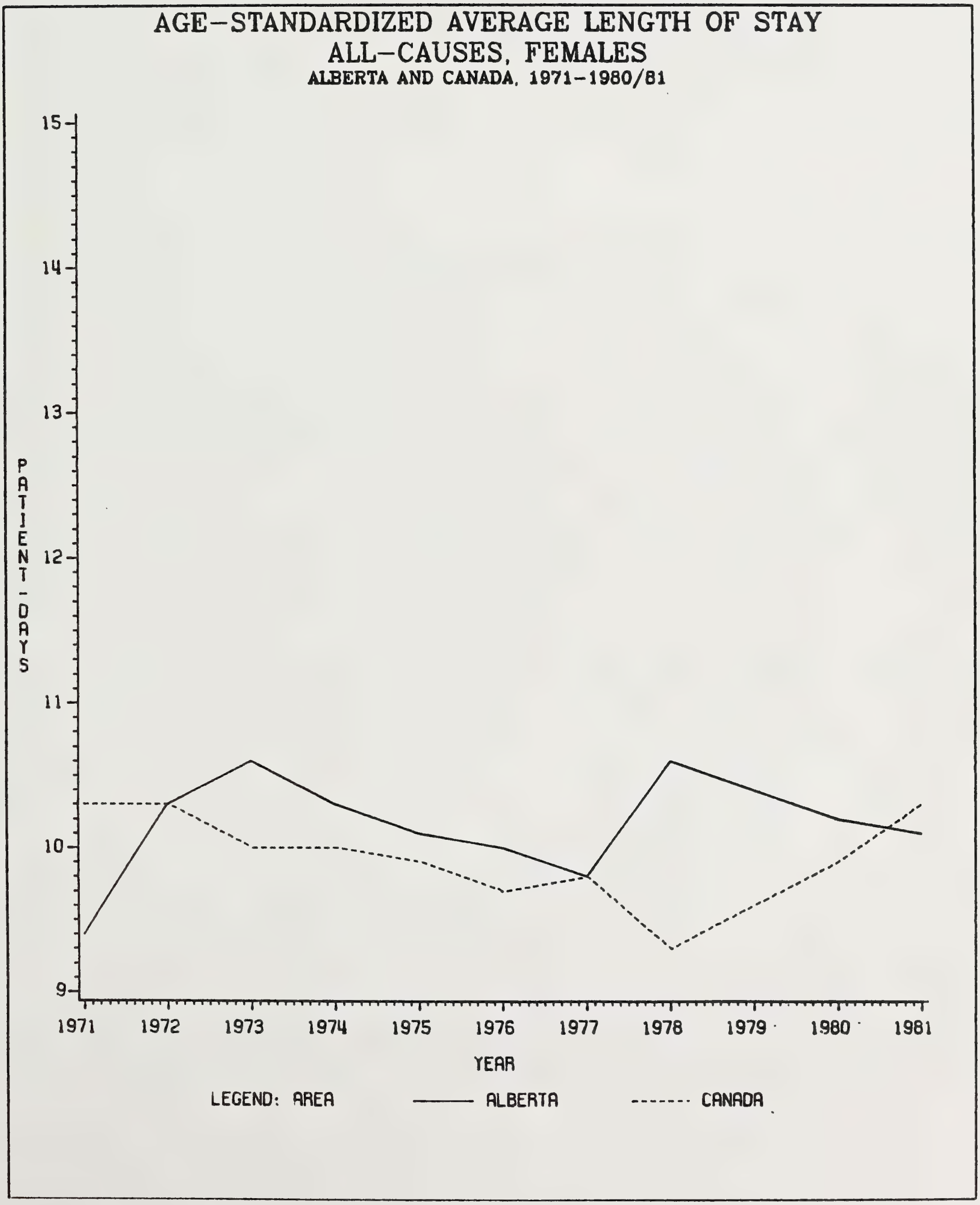


Figure 4.5, females



5. LIFE TABLE INDICES

5. LIFE TABLE INDICES

Life table theory is an area of demography which has as one of its concerns the development of mathematical models for making projections, that is, forecasts of the future. Population projections are a familiar application of this methodology. In this chapter a number of indices are described, all of which are based on life table methods. The underlying theory is at times complex and so no attempt will be made to provide the technical background (see appendix A). However, one aspect of the method needs to be appreciated.

Any mathematical model rests on a certain set of assumptions, and life table models are no exception. The most controversial assumption underlying the results to follow, and one which must always be kept in mind when interpreting these results, is that age-specific rates (for livebirths and deaths) will not change in the future. It is almost a certainty that this assumption will prove to be incorrect, and this means that life table projections are likely to be in error -- perhaps dramatically so. Nevertheless the projections made do give a stepping-off point to further discussion in that they provide a "best guess" at what the future might hold in store based on current patterns.

In order to avoid repeated references to the above underlying assumption, the results of this chapter are phrased as if this assumption were correct. However, the reader is cautioned to always bear in mind that this is only for convenience of exposition. The remarks to follow give the projected experience of a group of newborns, that is, a birth cohort, born during 1981. It needs to be stressed that the indices described below only refer to outcomes for this birth cohort measured from the time of birth. The same analysis could be performed with "follow-up" from a later age.

It will be seen that the results of this chapter complement and reinforce those of earlier chapters. This is only to be expected since the same statistics are being analysed, but only from a different point of view.

Table 5.1 The ordinary life table projects the survival experience of the birth cohort according to death from all-causes. The columns of the life table give the percent of the birth cohort surviving to selected ages and the life expectancy at those ages.

- the table entries are nearly identical for Alberta and Canada.
- most deaths will take place at an advanced age, with 82% of Alberta males and 90% of Alberta females surviving to age 60.
- the life expectancy at birth for Alberta males is 72 years, and that for Alberta females is 79 years.

Table 5.1 Ordinary Life Table, 1981

Age	Alberta Percent Survivorship to Age	Alberta Life Expectancy at Age	Canada Percent Survivorship to Age	Canada Life Expectancy at Age
		Male		
0	100.0	72.0	100.0	71.9
10	98.4	63.1	98.5	62.9
20	97.4	53.7	97.7	53.4
30	95.8	44.5	96.3	44.1
40	94.1	35.2	94.8	34.7
50	90.6	26.4	91.4	25.8
60	82.2	18.5	82.5	18.0
70	64.8	11.9	64.0	11.6
80	37.0	7.0	35.0	6.9
		Female		
0	100.0	79.1	100.0	79.0
10	98.7	70.1	98.9	69.9
20	98.3	60.3	98.5	60.1
30	97.8	50.6	98.0	50.4
40	96.8	41.1	97.2	40.7
50	94.7	31.9	95.2	31.5
60	90.1	23.2	90.4	22.9
70	80.0	15.4	79.7	15.1
80	59.1	8.9	57.5	8.8

Table 5.2 The multiple decrement life table projects the survival experience of that segment of the birth cohort due to die of a given cause of death. The present discussion will focus on circulatory disease, neoplasms and external causes. The columns of the life table give the percent of the birth cohort that will die of the given cause and the corresponding life expectancy (at birth).

- the table entries are approximately the same for Alberta and Canada.

- 47% of Alberta males and 54% of Alberta females will die of circulatory disease; the males have a life expectancy of 77 years and the females have a life expectancy of 84 years (both of which are greater than the all-causes life expectancies of table 5.1).

- 9% of Alberta males and 5% of Alberta females will die of external causes; the males have a life expectancy of 48 years and the females have a life expectancy of 61 years (both of which are much less than the all-causes life expectancies of table 5.1).

- the picture for neoplasms is intermediate between circulatory disease and external causes.

- taken together the three causes will account for 77% (47 + 21 + 9) of deaths in Alberta males and 70% (54 + 20 + 5) of deaths in Alberta females.

Table 5.2 Multiple Decrement Life Table, ICD-9 Chapter Causes of Death, 1981

	Alberta		Canada	
Cause	Percent due to die of cause	Life Expectancy	Percent due to die of cause	Life Expectancy
		Male		
Circulatory	47.4	76.9	48.9	75.8
Neoplasms	20.9	72.4	23.1	71.6
External	8.5	48.0	7.1	48.0
		Female		
Circulatory	53.7	83.8	55.7	83.5
Neoplasms	20.3	73.6	20.4	73.2
External	4.6	60.6	4.1	63.6

Table 5.3 Reproduction indices project the reproductive experience of the female segment of the birth cohort.

- * the average number of children that an Alberta female will have is 1.9; the corresponding figure for Canadian females is 1.7.

If it is assumed that from the point of view of childbearing the population is essentially composed of male-female couples, it follows that the birth cohort will not replace itself in the next generation since the average number of children per couple will be less than 2.

Table 5.3 Reproduction Indices, 1981

	Reproduction Indices	
Index	Alberta	Canada
Average number of children	1.89	1.67
Average number of female children	0.92	0.81
Average age of childbearing	26.5	27.0

APPENDIX A

APPENDIX A: DEMOGRAPHIC TECHNIQUES

In order to make this report accessible to the reader not having an extensive background in demographic techniques the formulas presented in chapters 1 - 5 were given with the aim of introducing a particular concept, as opposed to providing a rigorous mathematical treatment. This appendix provides a more formal presentation of the techniques used in the report along with references giving additional details.

A.1 Age Groups

The age groups used for computing the different summary indices vary according to the type of statistics being considered. The following schemes correspond to the manner in which Statistics Canada publishes material:

natality:	5-year age groups for 10 - 49
mortality:	<1, 1 - 4, 5-year age groups for 5 - 84, 85+
hospital morbidity:	<1, 1 - 4, 5 - 14, 15 - 19, 20 - 24, 25 - 34, 35 - 44, 45 - 64, 65 - 74, 75+

A.2 Age-Standardization

The following discussion will be phrased in terms of death rates, but is easily translated into other types of rates.

Let R_i be the death rate (for a given cause) in the i^{th} age group in the population under study, and let S_i be the size of the i^{th} age group in the standard population. Then the age-standardized death rate is defined by

$$\frac{\sum_i S_i R_i}{\sum_i S_i}$$

where the sum is taken over all (mortality) age groups.

A reference for this section is [2].

A.3 Potential Years of Life Lost

Let D_i be the number of deaths (due to a given cause), and let m_i be the midpoint of the i^{th} (mortality) age group. Then the potential years of life lost (up to age 70) is defined by

$$\sum_i D_i \, (70 - m_i)$$

where the sum is taken over all (mortality) age groups in the 1 - 69 range.

A reference for this section is [2].

A.4 Age-Standardized Ratio

An age-standardized ratio is defined by taking the quotient of two age-standardized rates. The ratios considered in this report are the stillbirth ratio, therapeutic abortion ratio, and average length of stay. The rates entering into the definition of each of these ratios are indicated at the relevant points in the report.

A reference for this section is [2].

A.5 Life Table Methods

The ordinary life table used in the report came from a Statistics Canada publication (see Appendix B). The multiple decrement life table and reproduction indices were computed according to methods described in [2, 3] under the stationary population assumption.

A.6 Other

With a single exception all of the rates considered in this report have had numerators and denominators referring to the same segment of the population. For example, the age-specific livebirth rate for the 30 - 34 year olds has the number of livebirths born to this age group in the numerator, and the size of the age group in the denominator. Furthermore, the age-standardized livebirth rate is computed from such consistent age-specific rates.

The lone exception to this rule is the rate of natural increase, which has all livebirths and all deaths in the numerator, and the total population (male plus female) in the denominator.

It should be noted that in chapter 4 the statistics for 1979/80 and 1980/81 are treated, for the purposes of computing rates and drawing graphs, as if they refer to 1980 and 1981. That is, the denominators are taken from those calendar years.

APPENDIX B

APPENDIX B: SOURCES OF STATISTICS

For the most part the statistics used in this report came directly from Statistics Canada publications. Where this is so the catalogue numbers are shown in the following table. The exceptions are stillbirth and mortality statistics for Alberta, which were obtained by special request from Statistics Canada and Health and Welfare Canada. Occasionally Statistics Canada will update earlier statistics as new data becomes available, and consequently there is slight variation in certain statistics for a given year depending on the source selected. These revisions cause minor changes and are of little practical importance.

Statistics Canada Catalogue Numbers

Statistics	Alberta	Canada
population	92-901	92-901
livebirth	84-204	84-204
stillbirth	-	84-204
therapeutic abortion	82-211	82-211
mortality	-	84-206
hospital morbidity	82-206	82-206
ordinary life table	84-532	84-532

APPENDIX C

Table 1.1 Population Size, 1972-83

	Population Size*	
Year	Alberta	Canada
1972	1,657.3	21,801.3
1973	1,689.5	22,043.0
1974	1,722.4	22,363.9
1975	1,778.3	22,697.1
1976	1,838.0	22,992.6
1977	1,912.7	23,272.8
1978	1,983.1	23,517.0
1979	2,052.8	23,747.3
1980	2,140.6	24,042.5
1981	2,237.7	24,343.2
1982	2,317.0	24,634.2
1983	2,350.0	24,889.8

* in 1000s

Table 1.2 Rate of Population Growth, 1972-83

	Rate of Population Growth	
Year	Alberta	Canada
1972	1.81	1.08
1973	1.94	1.11
1974	1.94	1.45
1975	3.25	1.49
1976	3.36	1.30
1977	4.06	1.22
1978	3.68	1.05
1978	3.68	1.05
1979	3.51	0.98
1980	4.28	1.24
1981	4.54	1.25
1982	3.54	1.20
1983	1.42	1.04

Table 1.3 Age Distribution, 1983

Age Group	Age Distribution Alberta	 Canada
	Male	
0 - 9	16.1	14.9
10 - 19	16.4	16.7
20 - 29	23.0	19.0
30 - 39	16.6	15.9
40 - 49	10.1	11.0
50 - 59	8.2	9.8
60 - 69	5.4	7.3
70 - 79	3.0	4.0
80+	1.2	1.4
	Female	
0 - 9	15.9	13.9
10 - 19	16.1	15.6
20 - 29	22.2	18.6
30 - 39	15.9	15.5
40 - 49	9.8	10.7
50 - 59	8.2	9.9
60 - 69	6.2	8.2
70 - 79	3.8	5.2
80+	1.8	2.5

Table 1.4 Sex Composition, Females, 1983

	Sex Composition	
Age Group	Alberta	Canada
0 - 9	48.7	48.7
10 - 19	48.5	48.7
20 - 29	48.1	49.9
30 - 39	48.0	49.9
40 - 49	48.2	49.6
50 - 59	48.8	50.6
60 - 69	52.4	53.4
70 - 79	54.5	56.9
80+	59.9	65.0

Table 1.5 Rate of Natural Increase, 1972-82

	Rate of Natural Increase*	
Year	Alberta	Canada
1972	11.2	8.5
1973	10.9	8.1
1974	10.7	8.2
1975	11.4	8.4
1976	11.7	8.4
1977	11.9	8.3
1978	11.9	8.1
1979	12.1	8.4
1980	12.6	8.3
1981	13.3	8.2
1982	13.8	8.1

* number per 1000 total (male plus female) population

Table 2.1 Pregnancy Outcomes, 1972-82

	Pregnancy Outcomes		
Year	Livebirths	Stillbirths	Therapeutic Abortions
		Alberta	
1972	29,282	229	3,752
1973	29,288	206	4,047
1974	29,813	188	4,391
1975	31,624	185	4,333
1976	33,063	201	4,943
1977	34,406	238	5,642
1978	35,396	219	6,562
1979	37,003	217	6,872
1980	39,749	230	7,131
1981	42,638	219	6,757
1982	45,036	257	6,617
		Canada (minus Nfld)	
1972	334,421	2,925	6,249
1973	331,467	2,715	11,056
1974	335,409	2,639	41,043
1975	348,110	2,533	48,857
1976	348,857	2,447	53,679
1977	351,799	2,360	56,638
1978	348,885	2,143	61,269
1979	355,894	2,118	63,924
1980	360,377	1,980	64,704
1981	361,216	1,965	64,084
1982	363,909	1,876	65,355

Table 2.2 Age-Standardized Livebirth Rates, 1972-82

Year	Age-Standardized Livebirth Rates*	
	Alberta	Canada (minus Nfld)
1972	70.4	62.9
1973	67.8	60.6
1974	66.1	59.2
1975	65.6	58.8
1976	64.5	57.2
1977	62.9	56.6
1978	61.1	55.0
1979	60.3	55.0
1980	60.5	54.3
1981	60.6	53.3
1982	61.3	52.9

* livebirths per 1000 females

Table 2.3 Age-Specific Livebirth Rates, 1972-1982

	Age-Specific Livebirth Rates*							
Year	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49
Alberta								
1972	0.31	51.3	148.0	144.5	68.8	27.9	7.2	0.57
1973	0.42	48.7	144.9	140.7	65.5	22.3	5.8	0.48
1974	0.34	46.1	137.8	141.8	64.6	21.8	5.2	0.41
1975	0.41	47.8	136.3	139.5	65.5	20.3	4.9	0.40
1976	0.38	44.4	130.8	140.7	66.5	21.0	4.2	0.37
1977	0.42	43.4	125.7	136.3	68.6	20.4	3.8	0.30
1978	0.46	40.4	119.0	134.0	70.9	19.4	3.9	0.23
1979	0.34	39.1	117.3	134.2	69.0	19.3	3.9	0.18
1980	0.41	42.2	115.8	133.5	69.7	19.7	3.4	0.26
1981	0.50	43.6	112.0	134.6	72.0	20.8	3.8	0.30
1982	0.47	44.3	113.4	133.6	74.7	21.9	4.1	0.19
Canada (minus Nfld)								
1972	0.27	38.3	123.6	134.0	71.8	29.9	7.7	0.57
1973	0.30	37.3	118.4	132.6	67.4	25.7	6.4	0.39
1974	0.28	35.5	114.2	132.7	66.9	23.0	5.4	0.36
1975	0.33	35.4	114.1	132.9	65.8	21.6	4.8	0.35
1976	0.33	33.4	110.3	129.9	65.6	21.1	4.3	0.29
1977	0.31	32.0	107.9	129.4	67.0	20.5	3.6	0.28
1978	0.33	29.8	103.3	127.4	67.0	19.1	3.6	0.26
1979	0.32	28.0	102.0	129.6	68.5	19.4	3.3	0.19
1980	0.30	27.5	100.2	128.0	68.1	19.3	3.1	0.18
1981	0.30	26.4	96.7	126.9	68.0	19.4	3.2	0.19
1982	0.31	26.5	95.4	124.7	68.6	20.2	3.1	0.16

* livebirths per 1000 females

Table 2.4 Percent of Livebirths in Weight Category, 1972-82

Year	Percent of Livebirths in Weight Category* <1000	1,000-2,499	2,500-2,999	3000+
		Alberta		
1972	0.49	7.6	20.3	71.6
1973	0.33	6.9	20.2	72.5
1974	0.44	6.9	19.5	73.2
1975	0.45	6.7	19.2	73.7
1976	0.41	6.6	19.1	73.8
1977	0.40	6.3	18.5	74.8
1978	0.33	6.1	18.2	75.4
1979	0.40	6.0	17.9	75.7
1980	0.40	5.9	17.9	75.9
1981	0.42	6.0	17.7	75.9
1982	0.40	5.7	17.3	76.6
		Canada (minus Nfld)		
1972	0.42	6.9	18.8	73.9
1973	0.39	6.6	18.7	74.4
1974	0.38	6.5	18.4	74.7
1975	0.36	6.4	18.2	75.0
1976	0.37	6.2	17.8	75.6
1977	0.36	6.0	17.5	76.1
1978	0.36	5.9	17.2	76.5
1979	0.36	5.7	16.7	77.2
1980	0.36	5.7	16.5	77.5
1981	0.37	5.7	16.4	77.5
1982	0.38	5.5	16.0	78.2

* weight in grams

Table 2.5 Percent of Livebirths to Unmarried Women, 1975-82

Year	Percent of Livebirths to Unmarried Women Alberta	Canada (minus Nfld)
1975	10.2	8.7
1976	9.8	10.2
1977	10.6	10.8
1978	11.2	11.4
1979	11.6	11.9
1980	12.6	12.8
1981	13.8	13.9
1982	15.7	15.3

Table 2.6 Age-Standardized Stillbirth Ratios, 1972-81

Year	Age-Standardized Stillbirth Ratios* Alberta	Age-Standardized Stillbirth Ratios* Canada (minus Nfld)
1972	7.70	8.57
1973	6.96	8.05
1974	6.18	7.75
1975	5.68	7.17
1976	6.04	6.89
1977	6.75	6.53
1978	6.19	6.01
1979	5.85	5.85
1980	5.73	5.38
1981	5.14	5.38

* stillbirths per 1000 livebirths

Table 2.7 Age-Standardized Therapeutic Abortion Rates, 1972-81

Year	Age-Standardized Therapeutic Abortion Rates* Alberta	Canada (minus Nfld)
1972	8.21	1.07
1973	8.58	1.88
1974	8.96	6.80
1975	8.32	7.85
1976	9.03	8.42
1977	9.73	8.69
1978	10.73	9.24
1979	10.75	9.51
1980	10.62	9.48
1981	9.61	9.29

* therapeutic abortions per 1000 females

Table 2.8 Age-Specific Therapeutic Abortion Rates, 1972-81

	Age-Specific Therapeutic Abortion Rates*							
Year	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49
				Alberta				
1972	0.51	16.4	13.7	8.3	7.0	6.3	3.5	0.43
1973	0.72	17.0	15.8	9.1	6.5	5.5	2.7	0.18
1974	0.64	18.0	17.4	8.5	6.7	5.6	2.6	0.18
1975	0.75	17.6	15.1	9.2	5.5	4.5	2.2	0.44
1976	0.78	19.4	17.2	9.4	6.1	4.2	1.9	0.26
1977	0.85	19.9	19.2	10.7	6.4	4.2	1.8	0.30
1978	1.0	22.4	21.1	11.5	7.2	4.7	1.8	0.23
1979	0.80	22.8	21.4	12.2	6.6	4.0	1.4	0.27
1980	0.82	22.2	21.3	11.7	6.9	4.0	1.6	0.18
1981	0.73	20.3	19.4	10.3	6.3	3.5	1.5	0.16
				Canada (minus Nfld)				
1972	0.08	2.1	1.8	1.1	0.93	0.87	0.46	0.06
1973	0.15	3.2	3.3	2.1	1.7	1.4	0.75	0.09
1974	0.45	11.5	12.3	8.4	6.1	4.5	2.0	0.22
1975	0.53	13.4	14.0	10.2	6.9	5.0	2.2	0.22
1976	0.60	14.1	15.3	11.0	7.5	5.1	2.3	0.24
1977	0.62	14.9	16.0	11.2	7.5	4.9	2.1	0.31
1978	0.58	15.9	17.3	11.9	7.8	5.0	2.1	0.24
1979	0.65	16.5	18.2	12.2	7.9	4.8	1.9	0.23
1980	0.59	16.5	18.3	12.1	7.9	4.5	1.9	0.21
1981	0.59	15.9	18.1	12.0	7.7	4.4	1.8	0.16

* therapeutic abortions per 1000 females

Table 2.9 Age-Standardized Therapeutic Abortion Ratios, 1972-81

	Age-Standardized Therapeutic Abortion Ratios*	
Year	Alberta	Canada (minus Nfld)
1972	11.65	1.70
1973	12.66	3.09
1974	13.56	11.50
1975	12.68	13.35
1976	14.01	14.70
1977	15.48	15.36
1978	17.57	16.82
1979	17.83	17.28
1980	17.56	17.46
1981	15.85	17.44

* therapeutic abortions per 100 livebirths

Table 2.10 Percent of Therapeutic Abortions to Unmarried Women, 1972-81

Year	Percent of Therapeutic Abortions to Unmarried Women Alberta	 Canada (minus Nfld)
1972	71.8	70.6
1973	74.4	69.7
1974	76.3	68.8
1975	77.2	68.6
1976	78.7	69.3
1977	79.0	70.9
1978	79.5	72.6
1979	81.9	75.2
1980	82.9	76.2
1981	82.6	77.0

Table 2.11 Percent of Therapeutic Abortions to Women with One or More Previous Therapeutic Abortions, 1972-81

Year	Percent of Therapeutic Abortions to Women with One or More Previous Therapeutic Abortions Alberta	 Canada (minus Nfld)
1972	2.37	2.39
1973	3.30	4.28
1974	5.94	7.91
1975	6.26	8.88
1976	6.66	10.31
1977	7.96	11.66
1978	8.20	13.30
1979	10.08	14.41
1980	12.05	15.62
1981	11.72	16.77

Table 3.1 Perinatal Deaths and Rates, 1972-82

	Alberta		Canada	
Year	Deaths	Rates*	Deaths	Rates*
1972	550	18.6	6,672	19.0
1973	433	14.7	6,087	17.6
1974	422	14.0	5,835	16.7
1975**	424	13.3	5,566	15.4
1976**	460	13.8	5,296	14.6
1977	438	12.6	5,027	13.8
1978	407	11.4	4,598	12.8
1979	399	10.7	4,345	11.8
1980	469	11.7	4,044	10.9
1981	449	10.5	4,009	10.7
1982	467	10.3	3,796	10.1

* deaths per 1000 total births (stillbirths plus livebirths)

** Quebec stillbirths estimated

Table 3.2 Infant Deaths and Rates, 1972-82

	Alberta		Canada	
Year	Deaths	Rates*	Deaths	Rates*
1972	511	17.5	5,938	17.1
1973	416	14.2	5,339	15.5
1974	449	15.1	5,192	14.8
1975**	471	14.9	4,953	13.8
1976**	471	14.2	4,714	13.1
1977	383	11.1	4,475	12.4
1978	405	11.4	4,289	12.0
1979	423	11.4	3,994	10.9
1980	500	12.6	3,868	10.4
1981	452	10.6	3,562	9.6
1982	442	9.8	3,401	9.1

* deaths per 1000 livebirths

** Quebec infant deaths estimated

Table 3.3 ICD-9 Chapter Causes of Death, Ranked by Number of Deaths, 1982

Alberta			Canada		
Cause	Number	%	Cause	Number	%
Male					
circulatory	3,047	39.4	circulatory	43,502	44.4
neoplasms	1,669	21.6	neoplasms	23,627	24.1
external	1,074	13.9	external	10,019	10.2
respiratory	636	8.2	respiratory	7,571	7.7
digestive	354	4.6	digestive	3,797	3.9
other	951	12.3	other	9,429	9.7
all-causes	7,731	100	all-causes	97,945	100
Female					
circulatory	2,321	44.3	circulatory	36,842	48.3
neoplasms	1,224	23.4	neoplasms	18,717	24.5
external	392	7.5	respiratory	4,663	6.1
respiratory	338	6.5	external	4,114	5.4
digestive	224	4.3	digestive	3,152	4.1
other	737	14.0	other	8,805	11.5
all-causes	5,236	100	all-causes	76,293	100

Table 3.4 ICD-9 Chapter Causes of Death, Ranked by Age-Standardized Death Rates, 1982

Alberta			Canada		
Cause	Rate*	%	Cause	Rate*	%
Male					
circulatory	259.4	39.5	circulatory	287.4	43.0
neoplasms	141.7	21.6	neoplasms	154.6	23.1
external	90.6	13.8	external	81.0	12.1
respiratory	54.2	8.3	respiratory	50.9	7.6
digestive	30.0	4.6	digestive	25.4	3.8
other	80.8	12.3	other	69.9	10.4
all-causes	656.7	100	all-causes	669.2	100
Female					
circulatory	202.9	44.2	circulatory	216.4	46.2
neoplasms	107.4	23.4	neoplasms	116.0	24.8
external	34.5	7.5	external	29.9	6.4
respiratory	29.6	6.4	respiratory	28.0	6.0
digestive	19.6	4.3	digestive	19.2	4.1
other	64.7	14.1	other	59.2	12.6
all-causes	458.7	100	all-causes	468.8	100

* deaths per 100,000 males or females

Table 3.5 Potential Years of Life Lost, Ranked by ICD-9 Chapter, 1982

Alberta			Canada		
Cause	PYLL	%	Cause	PYLL	%
		Male			
external	35,415	47.7	external	305,161	40.4
circulatory	12,342	16.6	circulatory	181,430	24.0
neoplasms	10,913	14.7	neoplasms	144,269	19.1
symptoms	4,679	6.3	digestive	29,693	3.9
digestive	3,492	4.7	respiratory	23,782	3.2
other	7,400	10.0	other	70,569	9.3
all-causes	74,241	100	all-causes	754,904	100
		Female			
external	10,851	31.9	neoplasms	133,146	35.5
neoplasms	10,081	29.7	external	93,886	25.0
circulatory	5,659	16.7	circulatory	69,077	18.4
symptoms	1,527	4.5	digestive	15,630	4.2
digestive	1,397	4.1	respiratory	15,360	4.1
other	4,468	13.1	other	48,465	12.9
all-causes	33,983	100	all-causes	375,564	100

Table 3.6 Selected Causes of Deaths, Ranked by Number of Deaths, 1982

Alberta			Canada		
Cause	Number	%	Cause	Number	%
Male					
IHD	1,909	24.7	IHD	28,777	29.4
lung cancer	489	6.3	lung cancer	7,717	7.9
CVD	458	5.9	CVD	6,329	6.5
MVA	321	4.2	MVA	2,938	3.0
suicide	291	3.8	suicide	2,722	2.8
pneumonia	236	3.1	pneumonia	2,653	2.7
cirrhosis	164	2.1	cirrhosis	1,588	1.6
total	3,868	50.1	total	52,724	53.9
Female					
IHD	1,140	21.8	IHD	20,225	26.5
CVD	592	11.3	CVD	8,183	10.7
breast cancer	224	4.3	breast cancer	3,648	4.8
pneumonia	180	3.4	pneumonia	2,460	3.2
MVA	140	2.7	lung cancer	2,423	3.2
lung cancer	135	2.6	MVA	1,138	1.5
suicide	68	1.3	cirrhosis	798	1.0
cirrhosis	61	1.2	suicide	795	1.0
total	2,540	48.6	total	39,670	51.9

Table 3.7 Selected Causes of Death, Ranked by Age-Standardized Death Rates, 1982

Alberta			Canada		
Cause	Rate*	%	Cause	Rate*	%
			Male		
IHD	162.4	24.7	IHD	188.9	28.2
lung cancer	41.5	6.3	lung cancer	49.4	7.4
CVD	39.1	6.0	CVD	42.3	6.3
MVA	27.1	4.1	MVA	24.8	3.7
suicide	24.5	3.7	suicide	22.0	3.3
pneumonia	20.2	3.1	pneumonia	18.3	2.7
cirrhosis	13.9	2.1	cirrhosis	10.6	1.6
total	328.7	50.0	total	356.3	53.2
			Female		
IHD	99.7	21.7	IHD	118.5	25.3
CVD	51.7	11.3	CVD	48.2	10.3
breast cancer	19.6	4.3	breast cancer	23.0	4.9
pneumonia	15.7	3.4	lung cancer	15.0	3.2
MVA	12.4	2.7	pneumonia	14.7	3.1
lung cancer	11.9	2.6	MVA	9.0	1.9
suicide	6.0	1.3	suicide	6.0	1.3
cirrhosis	5.8	1.2	cirrhosis	5.1	1.1
total	222.8	48.5	total	239.5	51.1

* deaths per 100,000 males or females

Table 3.8 Selected Causes of Death, Ranked by Potential Years of Life Lost, 1982

Alberta			Canada		
Cause	PYLL	%	Cause	PYLL	%
		Male			
MVA	12,322	16.6	IHD	130,463	17.3
suicide	9,318	12.6	MVA	108,811	14.4
IHD	8,360	11.3	suicide	82,543	10.9
lung cancer	2,463	3.3	lung cancer	41,888	5.6
cirrhosis	2,193	3.0	CVD	19,458	2.6
CVD	1,233	1.7	cirrhosis	18,623	2.5
pneumonia	605	0.81	pneumonia	7,765	1.0
total	36,494	49.3	total	409,551	54.3
		Female			
MVA	5,119	15.1	MVA	37,021	9.9
breast cancer	2,243	6.6	IHD	33,313	8.9
IHD	2,215	6.5	breast cancer	32,445	8.6
suicide	2,033	6.0	suicide	21,308	5.7
CVD	1,388	4.1	lung cancer	17,480	4.7
lung cancer	1,095	3.2	CVD	16,960	4.5
cirrhosis	895	2.6	cirrhosis	8,411	2.2
pneumonia	487	1.4	pneumonia	5,402	1.4
total	15,475	45.5	total	172,340	45.9

Table 3.9 Age-Standardized Death Rates, All-Causes, 1972-82

Year	Age-Standardized Death Rates* Alberta	Canada
	Male	
1972	733.8	796.7
1973	717.0	791.8
1974	735.8	788.0
1975	719.3	774.0
1976	716.3	755.4
1977	689.5	742.3
1978	687.0	730.4
1979	680.8	710.9
1980	690.5	701.3
1981	666.8	681.3
1982	656.7	669.2
	Female	
1972	520.5	575.5
1973	516.5	565.4
1974	523.4	561.2
1975	516.8	544.0
1976	495.9	525.0
1977	489.6	513.0
1978	487.5	501.1
1979	472.8	489.8
1980	482.0	488.1
1981	475.0	471.7
1982	458.7	468.8

* deaths per 100,000 males or females

Table 3.10 Age-Standardized Death Rates, Lung Cancer, 1972-82

	Age-Standardized Death Rates*	
Year	Alberta	Canada
	Male	
1972	28.7	38.5
1973	30.7	39.9
1974	32.8	41.8
1975	33.1	41.4
1976	33.7	42.8
1977	31.1	44.3
1978	34.2	45.5
1979	37.9	46.5
1980	37.7	47.8
1981	35.6	47.0
1982	41.5	49.4
	Female	
1972	7.5	7.9
1973	6.4	8.4
1974	7.8	9.1
1975	8.4	9.3
1976	7.6	9.5
1977	9.2	10.7
1978	11.7	11.5
1979	8.7	12.5
1980	13.0	13.1
1981	13.1	13.8
1982	11.8	15.0

* deaths per 100,000 males or females

Table 3.11 Age-Standardized Death Rates, Female Breast Cancer, 1973-82

	Age-Standardized Death Rates*	
Year	Alberta	Canada
1973	18.6	24.2
1974	22.8	24.2
1975	22.4	23.5
1976	22.9	23.2
1977	21.2	23.8
1978	22.3	22.9
1979	20.7	23.2
1980	23.5	23.1
1981	22.3	23.3
1982	19.6	23.0

* deaths per 100,000 females

Table 3.12 Age-Standardized Death Rates, Ischemic Heart Disease, 1972-82

	Age-Standardized Death Rates*	
Year	Alberta	Canada
	Male	
1972	201.2	250.3
1973	200.9	246.0
1974	206.0	246.5
1975	198.9	236.9
1976	194.9	234.9
1977	191.0	229.9
1978	190.4	218.7
1979	188.9	205.6
1980	181.5	201.4
1981	175.8	194.6
1982	162.4	188.9
	Female	
1972	117.1	160.9
1973	129.0	159.6
1974	129.0	159.3
1975	119.5	149.7
1976	111.4	146.4
1977	116.4	142.2
1978	116.0	138.5
1979	106.4	127.7
1980	109.5	126.8
1981	104.8	120.6
1982	99.7	118.5

* deaths per 100,000 males or females

Table 3.13 Age-Standardized Death Rates, Cerebrovascular Disease, 1972-82

Year	Age-Standardized Death Rates* Alberta	 Canada
	Male	
1972	56.1	64.7
1973	56.0	62.4
1974	52.2	61.9
1975	51.3	59.4
1976	46.6	56.6
1977	45.8	53.8
1978	45.5	51.7
1979	45.1	49.8
1980	47.9	47.2
1981	42.9	45.4
1982	39.1	42.3
	Female	
1972	66.7	73.0
1973	67.4	69.1
1974	66.8	68.4
1975	61.6	67.2
1976	61.6	62.9
1977	57.7	59.2
1978	56.3	55.9
1979	51.5	52.4
1980	50.1	52.4
1981	53.9	50.5
1982	51.8	48.2

* deaths per 100,000 males or females

Table 3.14 Age-Standardized Death Rates, Pneumonia, 1972-82

Year	Age-Standardized Death Rates* Alberta	Age-Standardized Death Rates* Canada
Male		
1972	17.7	24.2
1973	21.5	23.3
1974	22.4	23.8
1975	20.8	24.7
1976	24.4	22.6
1977	18.1	20.2
1978	16.7	19.9
1979	16.6	16.4
1980	16.9	17.7
1981	20.1	16.9
1982	20.2	18.3
Female		
1972	15.2	20.0
1973	19.0	19.0
1974	17.1	18.7
1975	16.8	18.7
1976	19.2	17.0
1977	16.9	16.4
1978	14.4	14.2
1979	10.5	12.7
1980	14.4	13.7
1981	14.2	12.5
1982	15.7	14.7

* deaths per 100,000 males or females

Table 3.15 Age-Standardized Death Rates, Cirrhosis, 1972-82

Year	Age-Standardized Death Rates* Alberta	Age-Standardized Death Rates* Canada
	Male	
1972	8.9	12.3
1973	10.4	14.0
1974	10.3	14.2
1975	11.6	14.5
1976	12.7	14.6
1977	12.9	14.3
1978	13.2	14.1
1979	13.4	12.8
1980	13.5	12.9
1981	14.3	12.5
1982	13.9	10.6
	Female	
1972	5.8	6.1
1973	5.6	6.2
1974	5.9	6.4
1975	6.3	6.5
1976	6.7	6.3
1977	6.9	6.1
1978	6.6	6.4
1979	7.6	6.0
1980	7.6	5.7
1981	7.0	5.8
1982	5.4	5.1

* deaths per 100,000 males or females

Table 3.16 Age-Standardized Death Rates, Motor Vehicle Accidents, 1972-82

	Age-Standardized Death Rates*	
Year	Alberta	Canada
	Male	
1972	43.6	45.4
1973	48.6	44.9
1974	50.5	43.0
1975	41.5	38.9
1976	43.0	33.7
1977	46.2	33.8
1978	36.6	32.4
1979	46.9	36.7
1980	42.5	33.6
1981	41.6	33.6
1982	27.1	24.8
	Female	
1972	14.1	15.1
1973	16.9	16.3
1974	16.1	15.0
1975	14.7	13.9
1976	16.1	11.8
1977	17.4	11.7
1978	15.5	11.9
1979	19.4	12.9
1980	17.6	12.4
1981	17.0	11.0
1982	12.4	9.0

* deaths per 100,000 males or females

Table 3.17 Age-Standardized Death Rates, Suicide, 1972-82

	Age-Standardized Death Rates	
Year	Alberta	Canada
	Male	
1972	21.6	18.6
1973	20.2	18.8
1974	23.7	19.8
1975	22.9	18.6
1976	26.1	19.0
1977	28.0	21.8
1978	25.9	22.8
1979	23.7	21.5
1980	26.9	21.2
1981	23.2	21.0
1982	24.5	22.0
	Female	
1972	6.2	7.2
1973	7.0	7.2
1974	11.0	7.2
1975	7.8	6.9
1976	8.8	7.2
1977	8.3	7.2
1978	7.7	7.1
1979	6.9	6.8
1980	9.3	6.5
1981	7.2	6.4
1982	6.0	6.0

* deaths per 100,000 males or females

Table 3.18 Age-Specific Death Rates, All-Causes, 1982

Age Group	Age-Specific Death Rates* Alberta	Canada
Male		
under 1	1,179.3	1050.0
1-4	60.7	53.3
5-14	36.5	33.5
15-24	148.8	129.8
25-34	138.7	132.3
35-44	228.8	203.2
45-54	592.4	589.6
55-64	1,403.3	1,549.4
65-74	3,560.2	3,769.8
75+	10,214.3	10,348.6
Female		
under 1	955.2	788.6
1-4	40.3	41.8
5-14	22.3	21.7
15-24	47.5	40.9
25-34	69.5	56.7
35-44	133.1	123.8
45-54	297.3	319.8
55-64	724.1	772.8
65-74	1,740.5	1,918.5
75+	7,152.0	7,291.9

* deaths per 100,000 males or females

Table 3.19 Age-Specific Death Rates, Lung Cancer, 1982

Age Group	Age-Specific Death Rates* Alberta	Age-Specific Death Rates* Canada
Male		
under 1	0.0	0.0
1-4	0.0	0.0
5-14	0.0	0.0
15-24	0.0	0.0
25-34	0.41	0.61
35-44	2.8	8.7
45-54	45.3	55.6
55-64	150.4	201.8
65-74	394.2	426.3
75+	450.0	518.1
Female		
under 1	0.0	0.0
1-4	0.0	0.0
5-14	0.0	0.06
15-24	0.0	0.04
25-34	0.91	0.70
35-44	4.4	6.1
45-54	22.0	24.7
55-64	46.4	61.3
65-74	70.8	92.3
75+	74.7	94.3

* deaths per 100,000 males or females

Table 3.20 Age-Specific Death Rates, Female Breast Cancer, 1982

Age Group	Age-Specific Death Rates* Alberta	 Canada
	Female	
under 1	0.0	0.0
1-4	0.0	0.0
5-14	0.0	0.0
15-24	0.0	0.0
25-34	3.2	2.8
35-44	16.3	16.5
45-54	33.0	49.8
55-64	69.6	81.4
65-74	99.8	110.7
75+	133.3	151.5

* deaths per 100,000 females

Table 3.21 Age-Specific Death Rates, Ischemic Heart Disease, 1982

Age Group	Age-Specific Death Rates* Alberta	 Canada
Male		
under 1	0.0	0.0
1-4	0.0	0.0
5-14	0.0	0.0
15-24	1.6	0.60
25-34	1.7	5.3
35-44	33.8	40.9
45-54	145.1	179.1
55-64	388.1	526.0
65-74	1,157.7	1,260.4
75+	2,964.3	3,298.4
Female		
under 1	0.0	0.0
1-4	0.0	0.0
5-14	0.0	0.11
15-24	0.43	0.13
25-34	2.7	1.6
35-44	5.2	6.5
45-54	33.0	36.2
55-64	112.3	144.7
65-74	419.2	544.6
75+	2,053.3	2372.1

* deaths per 100,000 males or females

Table 3.22 Age-Specific Death Rates, Cerebrovascular Disease, 1982

Age Group	Age-Specific Death Rates* Alberta	Canada
	Male	
under 1	0.0	0.53
1-4	0.0	0.54
5-14	0.54	0.37
15-24	1.2	0.98
25-34	0.0	2.0
35-44	5.5	7.2
45-54	12.9	19.8
55-64	60.7	61.1
65-74	188.8	237.4
75+	1,046.4	1,032.0
	Female	
under 1	5.0	1.1
1-4	0.0	0.0
5-14	0.0	0.22
15-24	0.43	0.48
25-34	2.7	2.8
35-44	8.1	6.3
45-54	17.0	19.3
55-64	47.6	45.6
65-74	148.8	157.6
75+	1,160.0	1,046.9

* deaths per 100,000 males or females

Table 3.23 Age-Specific Death Rates, Pneumonia, 1982

Age Group	Age-Specific Death Rates* Alberta	 Canada
	Male	
under 1	28.3	20.2
1-4	1.3	2.2
5-14	0.0	0.32
15-24	0.0	0.77
25-34	0.41	1.1
35-44	2.8	1.3
45-54	7.4	6.2
55-64	24.0	19.5
65-74	78.8	67.1
75+	567.9	509.8
	Female	
under 1	24.9	28.0
1-4	2.7	1.7
5-14	0.0	0.45
15-24	0.0	0.44
25-34	0.45	0.42
35-44	4.4	1.8
45-54	2.0	3.9
55-64	11.0	11.1
65-74	36.3	35.8
75+	360.0	329.6

* deaths per 100,000 males or females

Table 3.24 Age-Specific Death Rates, Cirrhosis, 1982

Age Group	Age-Specific Death Rates* Alberta	Canada
Male		
under 1	0.0	0.0
1-4	0.0	0.0
5-14	0.0	0.0
15-24	0.4	0.1
25-34	2.5	1.8
35-44	13.1	9.1
45-54	36.0	28.9
55-64	69.5	48.6
65-74	62.2	58.0
75+	50.0	37.1
Female		
under 1	0.0	2.2
1-4	0.0	0.6
5-14	0.0	0.1
15-24	0.0	0.1
25-34	1.4	1.1
35-44	7.4	3.9
45-54	15.0	11.4
55-64	22.0	18.6
65-74	20.0	25.6
75+	10.7	23.4

* deaths per 100,000 males or females

Table 3.25 Age-Specific Death Rates, Motor Vehicle Accidents, 1982

Age Group	Age-Specific Death Rates* Alberta	Age-Specific Death Rates* Canada
Male		
under 1	4.7	3.2
1-4	7.6	5.9
5-14	7.1	7.8
15-24	48.7	49.9
25-34	34.6	27.7
35-44	22.1	16.4
45-54	26.8	19.6
55-64	21.5	18.2
65-74	24.9	23.3
75+	21.4	36.0
Female		
under 1	0.0	3.4
1-4	2.7	4.2
5-14	6.3	5.7
15-24	19.7	13.4
25-34	13.2	7.6
35-44	12.6	8.4
45-54	10.0	7.1
55-64	11.0	10.1
65-74	14.5	15.1
75+	21.3	13.0

* deaths per 100,000 males or females

Table 3.26 Age-Specific Death Rates, Suicide, 1982

Age Group	Age-Specific Death Rates* Alberta	Canada
Male		
under 1	0.0	0.0
1-4	0.0	0.0
5-14	2.7	1.3
15-24	29.8	26.8
25-34	30.1	30.8
35-44	29.0	25.5
45-54	41.6	31.5
55-64	31.6	30.2
65-74	37.3	30.0
75+	32.1	25.7
Female		
under 1	0.0	0.0
1-4	0.0	0.0
5-14	0.0	0.22
15-24	5.1	4.8
25-34	7.7	8.0
35-44	9.6	10.0
45-54	14.0	11.1
55-64	9.8	10.9
65-74	7.3	8.2
75+	0.0	4.4

* deaths per 100,000 males or females

Table 4.1 ICD-9 Chapter Causes of Hospitalization, Ranked by Age-Standardized Separation Rates, 1980/81

Age-Standardized Separation Rates*					
	Alberta			Canada	
Cause	Rate	%	Cause	Rate	%
		Male			
external	2.31	17.0	digestive	1.73	14.8
respiratory	2.06	15.2	respiratory	1.70	14.6
digestive	1.96	14.5	external	1.59	13.6
circulatory	1.51	11.1	circulatory	1.51	12.9
musculo-skeletal	0.84	6.2	urological	0.72	6.1
urological	0.78	5.8	musculo-skeletal	0.70	6.0
other	4.08	30.2	other	3.73	32.0
all-causes	13.54	100	all-causes	11.68	100
		Female			
obstetric	5.59	28.1	obstetric	4.70	28.3
urological	1.97	9.9	urological	1.62	9.7
digestive	1.93	9.7	digestive	1.58	9.5
respiratory	1.79	8.9	respiratory	1.39	8.3
external	1.45	7.3	circulatory	1.14	6.9
circulatory	1.24	6.2	external	0.99	6.0
other	5.92	29.9	other	5.19	31.3
all-causes	19.89	100	all-causes	16.61	100

* separations per 100 males or females

Table 4.2 ICD-9 Chapter Causes of Hospitalization, Ranked by Age-Standardized Patient-Days Rates, 1980/81

	Age-Standardized Patient-Days Rates*				
	Alberta			Canada	
Cause	Rate	%	Cause	Rate	%
Male					
circulatory	38.5	23.7	circulatory	30.2	22.2
external	19.3	11.9	external	13.8	10.1
respiratory	15.0	9.2	mental	13.0	9.5
neurological	14.3	8.8	digestive	12.9	9.5
digestive	14.3	8.8	respiratory	12.6	9.3
neoplasms	12.7	7.8	neoplasms	11.8	8.7
other	48.7	29.8	other	41.9	30.7
all-causes	162.8	100	all-causes	136.2	100
Female					
circulatory	44.2	21.9	circulatory	32.1	18.7
obstetric	25.1	12.4	obstetric	22.7	13.3
external	16.1	8.0	mental	16.3	9.5
neurological	15.2	7.5	digestive	13.2	7.7
digestive	15.2	7.5	neoplasms	12.2	7.2
mental	13.4	6.6	external	11.4	6.7
other	72.5	36.1	other	63.5	36.9
all-causes	201.7	100	all-causes	171.4	100

* patient-days per 100 males or females

Table 4.3 Age-Standardized Separation Rates, All-Causes, 1971-80/81

Year	Age-Standardized Separation Rates* Alberta	Canada
	Male	
1971	17.8	13.1
1972	17.5	13.4
1973	16.9	13.6
1974	17.6	13.5
1975	16.3	13.1
1976	16.5	12.7
1977	15.4	12.4
1978	14.9	12.1
1979/80	14.5	11.8
1980/81	13.5	11.7
	Female	
1971	28.3	20.9
1972	27.4	20.8
1973	26.3	20.6
1974	26.5	20.2
1975	24.8	19.6
1976	24.5	18.8
1977	23.1	18.2
1978	22.3	17.7
1979/80	21.2	16.9
1980/81	19.9	16.6

* separations per 100 males or females

Table 4.4 Age-Standardized Patient-Days Rates, All-Causes, 1971-80/81

	Age-Standardized Patient-Days Rates*	
Year	Alberta	Canada
	Male	
1971	194.3	159.3
1972	209.1	161.2
1973	206.3	158.1
1974	201.2	155.6
1975	192.4	148.7
1976	182.7	141.3
1977	171.5	139.4
1978	172.9	128.4
1979/80	164.0	134.0
1980/81	162.8	136.3
	Female	
1971	265.3	215.6
1972	282.5	213.7
1973	278.9	206.2
1974	273.1	202.2
1975	251.1	193.1
1976	244.2	181.4
1977	226.0	178.4
1978	235.3	164.4
1979/80	215.3	178.4
1980/81	201.8	171.3

* patient-days per 100 males or females

Table 4.5 Age-Standardized Average Length of Stay, All-Causes, 1971-80/81

Year	Age-Standardized Average Length of Stay* Alberta	Canada
	Male	
1971	10.9	12.2
1972	11.9	12.0
1973	12.2	11.6
1974	11.4	11.5
1975	11.8	11.4
1976	11.0	11.1
1977	11.1	11.2
1978	11.6	10.6
1979/80	11.3	11.4
1980/81	12.0	11.6
	Female	
1971	9.4	10.3
1972	10.3	10.3
1973	10.6	10.0
1974	10.3	10.0
1975	10.1	9.9
1976	10.0	9.7
1977	9.8	9.8
1978	10.6	9.3
1979/80	10.2	9.9
1980/81	10.1	10.3

* patient-days

Table 5.1 Ordinary Life Table, 1981

Age	Alberta Percent Survivorship to Age	Alberta Life Expectancy at Age	Canada Percent Survivorship to Age	Canada Life Expectancy at Age
		Male		
0	100.0	72.0	100.0	71.9
10	98.4	63.1	98.5	62.9
20	97.4	53.7	97.7	53.4
30	95.8	44.5	96.3	44.1
40	94.1	35.2	94.8	34.7
50	90.6	26.4	91.4	25.8
60	82.2	18.5	82.5	18.0
70	64.8	11.9	64.0	11.6
80	37.0	7.0	35.0	6.9
		Female		
0	100.0	79.1	100.0	79.0
10	98.7	70.1	98.9	69.9
20	98.3	60.3	98.5	60.1
30	97.8	50.6	98.0	50.4
40	96.8	41.1	97.2	40.7
50	94.7	31.9	95.2	31.5
60	90.1	23.2	90.4	22.9
70	80.0	15.4	79.7	15.1
80	59.1	8.9	57.5	8.8

Table 5.2 Multiple Decrement Life Table, ICD-9 Chapter Causes of Death, 1981

	Alberta		Canada	
Cause	Percent due to die of cause	Life Expectancy	Percent due to die of cause	Life Expectancy
Male				
Circulatory	47.4	76.9	48.9	75.8
Neoplasms	20.9	72.4	23.1	71.6
External	8.5	48.0	7.1	48.0
Female				
Circulatory	53.7	83.8	55.7	83.5
Neoplasms	20.3	73.6	20.4	73.2
External	4.6	60.6	4.1	63.6

Table 5.3 Reproduction Indices, 1981

Index	Reproduction Indices Alberta	 Canada
Average number of children	1.89	1.67
Average number of female children	0.92	0.81
Average age of childbearing	26.5	27.0

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